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TABLE OF CONTENTS

Further Observations on Cortisone and ACTH as Therapeutic Agents. Robert E. Stone and Tom D. Spies, Birmingham, Alabama 885

Dermatologic Conditions Involving the Breast. Nelson Paul Anderson, Los Angeles, California 896

Primary Atypical Pneumonia in Childhood. G. R. Russell, Walter E. Brown and W. A. Betts, Tulsa, Oklahoma .. 906

Discussed by Allan Bloxsom, Houston, Texas; Edward M. Wier, Fort Worth, Texas.

Regression of Cervical Carcinoma *In Situ* Following Aureomycin: A Further Report. J. Ernest Ayre, Miami, Florida . 915

Discussed by Carey Hiett, Fort Worth, Texas; Karl John Karnaky, Houston, Texas.

Squamous Cell Papilloma of the Cervix Uteri. John L. Goforth, Dallas, Texas 921

Discussed by M. Pinson Neal, Columbia, Missouri; Oscar B. Hunter, Jr., Washington, District of Columbia.

Pelvic Abscess. C. Gordon Johnson, Conrad C. Collins and Herman B. Webster, Jr., New Orleans, Louisiana 926

Discussed by C. R. Bates, Dallas, Texas.

Relief of Pain by Transorbital Leukotomy. Casey E. Patterson and C. C. Nash, Dallas, Texas 934

Discussed by Joseph L. Knapp, Dallas, Texas.

Intracerebral Hematomas: A Survey of 106 Verified Cases. Guy L. Odom, Byron M. Bloor and Barnes Woodhall, Durham, North Carolina 936

Discussed by William S. Fields, Houston, Texas.

Lower Extremity Amputations. August W. Spittler, Washington, District of Columbia and John J. Brennan, Camp Gordon, Georgia 942

Discussed by Rufus H. Alldredge, New Orleans, Louisiana; Milton S. Thompson, Fort Sam Houston, Texas.

A Consideration of Cardiac Hypertrophy in Sickle Cell Anemia. Vernie A. Stembridge and R. H. Rigdon, Galveston, Texas 948

Discussed by R. H. Rigdon, Galveston, Texas.

The Prevention of Erythroblastosis Fetalis by the Use of Rh Hapten. A. Louis Dippel, Houston, Texas 954

Discussed by Eugene G. Hamilton, St. Louis, Missouri.

The Problem of Sensitization from Topical Therapeutic Agents. Sidney Prystowsky, Charleston, South Carolina .. 960

Discussed by A. A. Herold, Sr., Shreveport, Louisiana; Clarence S. Livingood, Galveston, Texas.

Evaluation of Available Therapeutic Agents in Ophthalmology. J. B. Rogers, Oxford, Mississippi 964

Continued on next page

TABLE OF CONTENTS
Continued

Polycythemia Secondary to Brain Tumor: Report of Two Cases. Charles R. Holmes, Frederick E. Kredel and Charles B. Hanna, Charleston, South Carolina 967

The Role of the General Practitioner in Community Medical Service. J. P. Sanders, Shreveport, Louisiana 972

EDITORIALS 976
Miami, Convention City for 1952
Combination of Antibiotics
Laboratory Diagnosis of Riboflavin Deficiency
Color in Medical Illustration
Twenty-Five Years Ago

CORRESPONDENCE 979

BOOK REVIEWS 980

BOOKS RECEIVED 984

A MESSAGE FROM THE GENERAL CHAIRMAN, E. W. Cullipher 985

MIAMI—WHERE WE MEET 986

OFFICERS of the Dade County Medical Association, Committees on Arrangements for the Miami Meeting, and Officers of the Southern Medical Association 992

PROGRAM FOR MIAMI MEETING 993

SOUTHERN MEDICAL NEWS 1013

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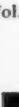

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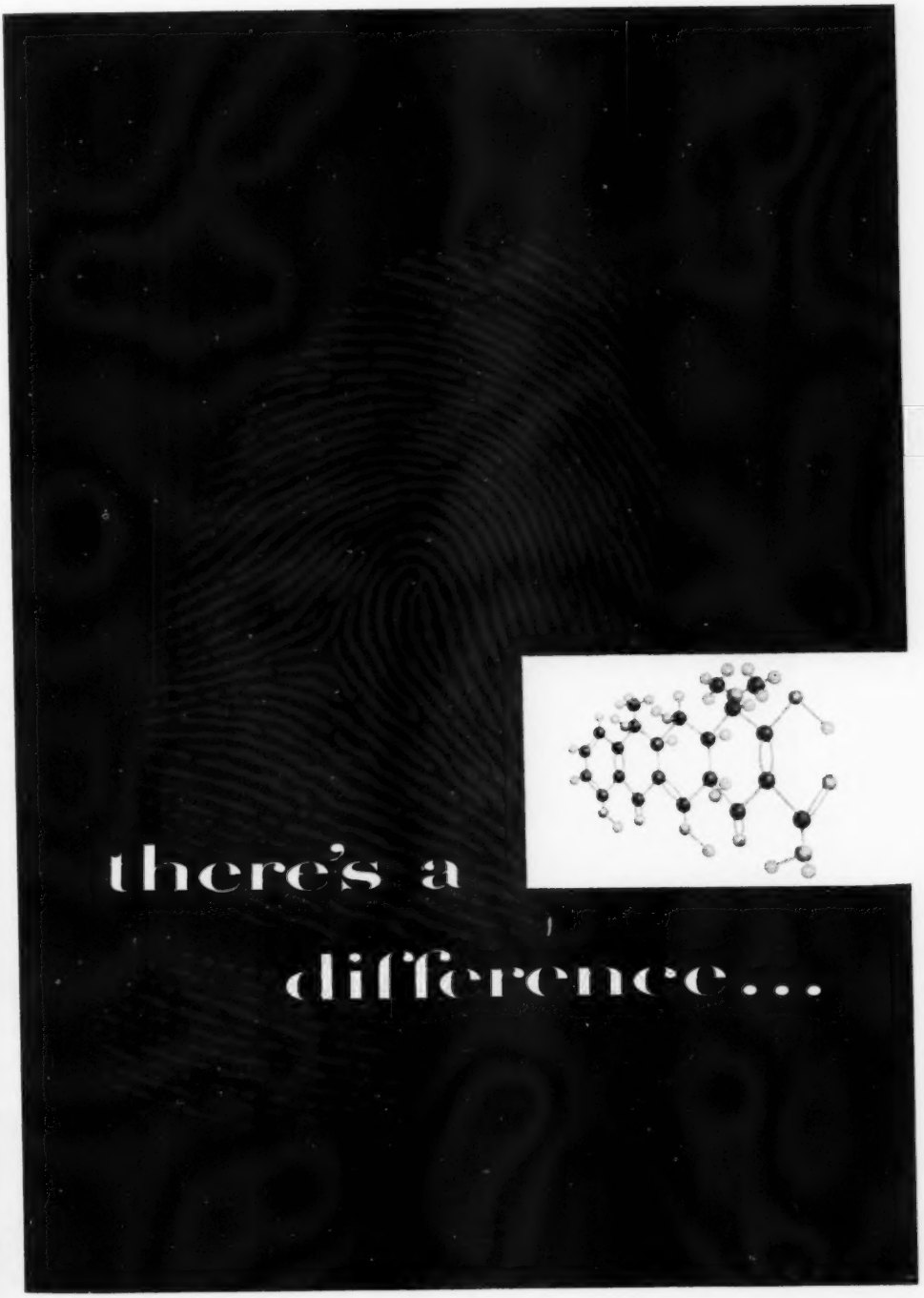
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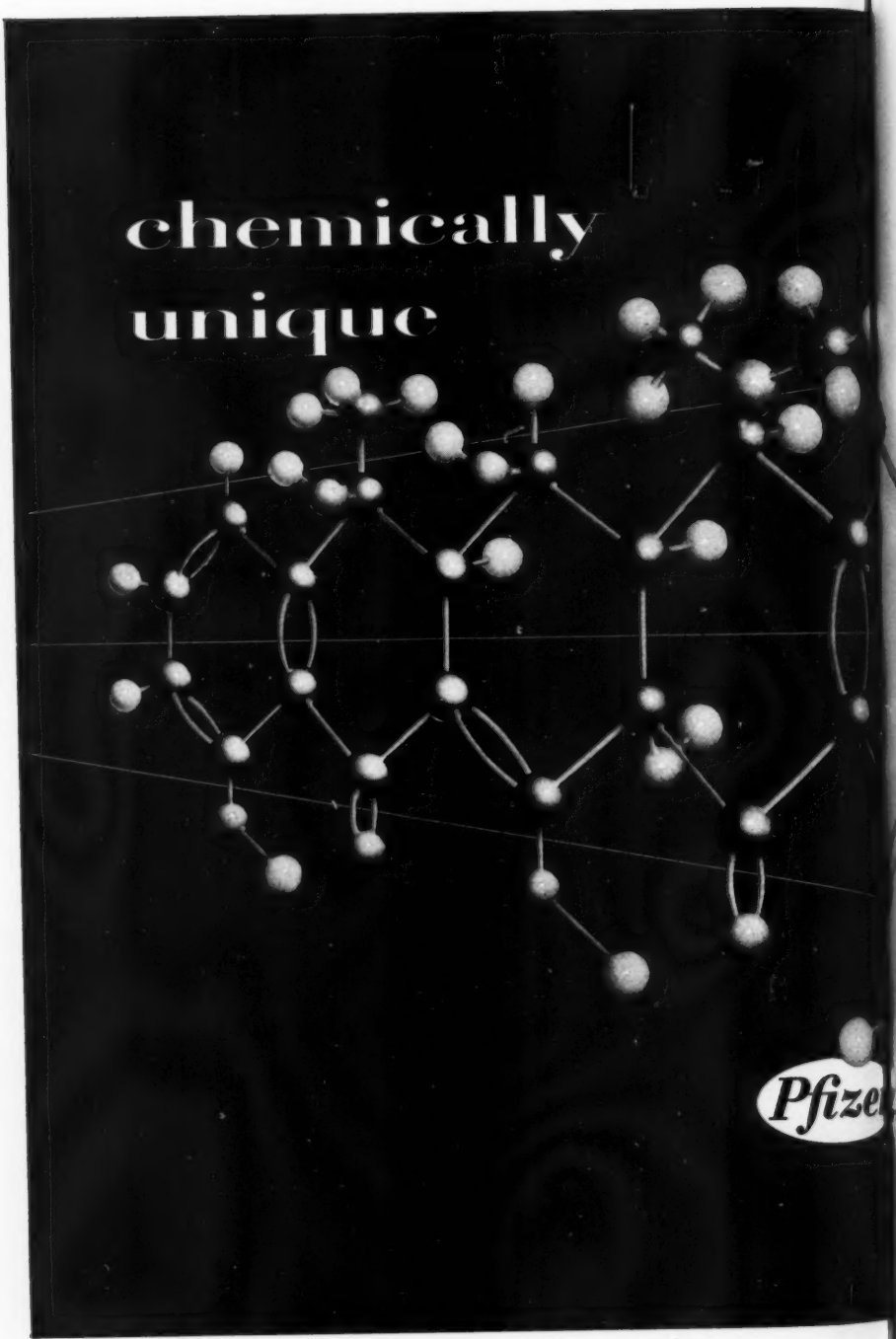
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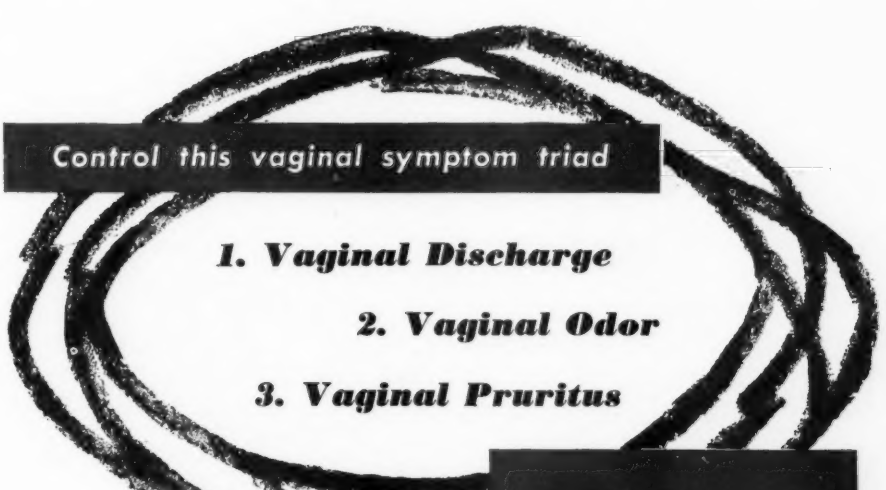

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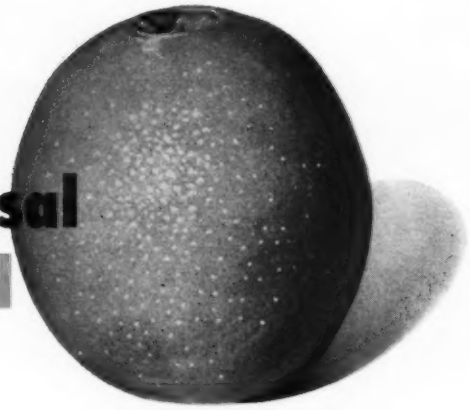

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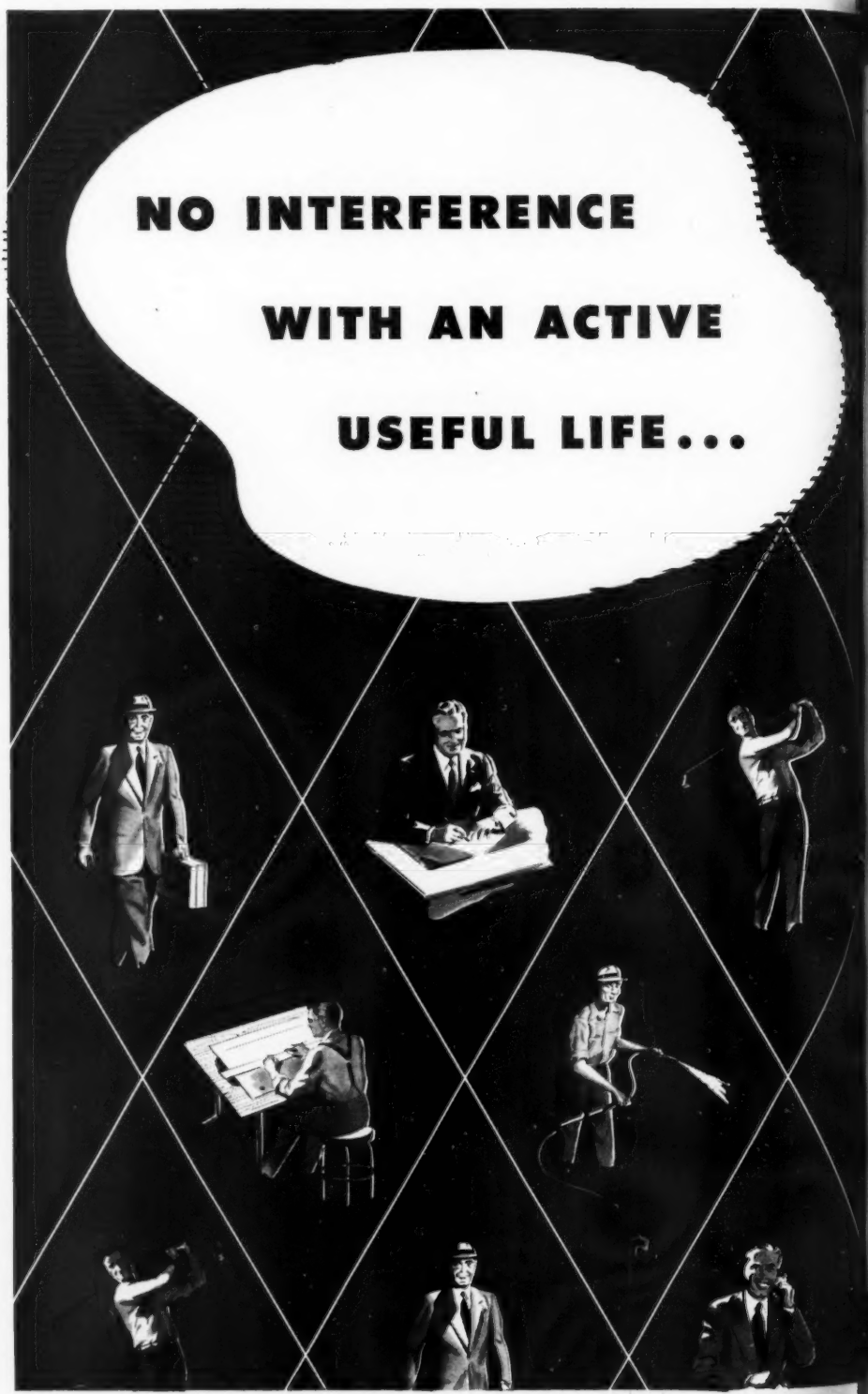
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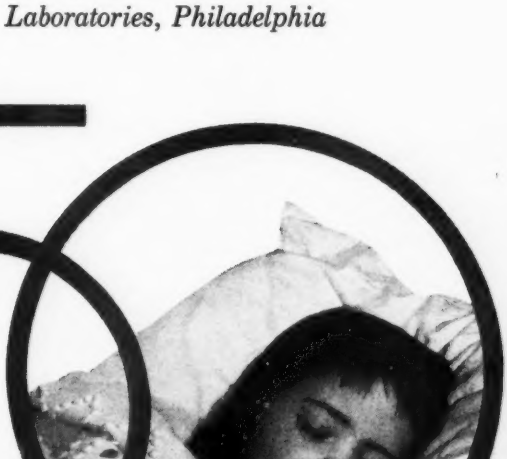

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1. Perloff, W. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.

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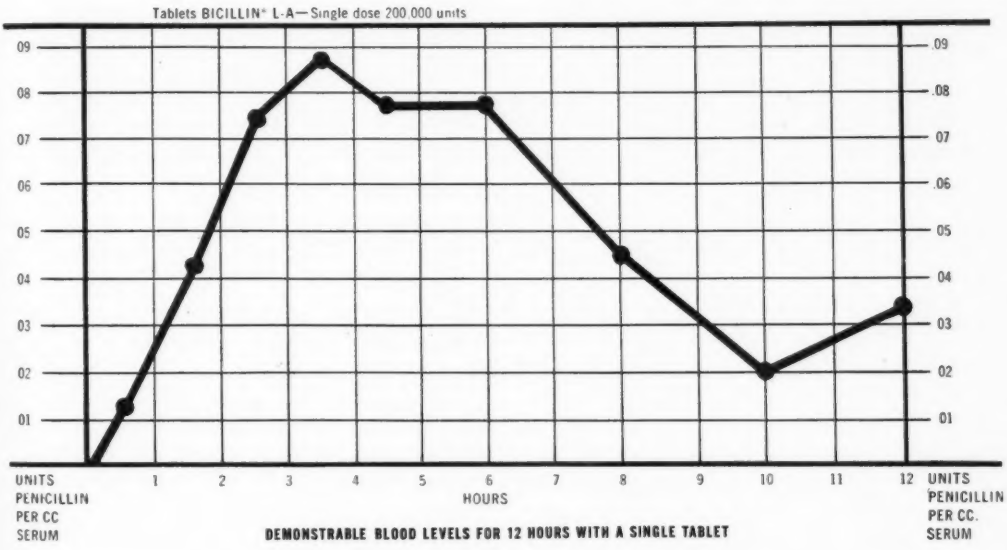

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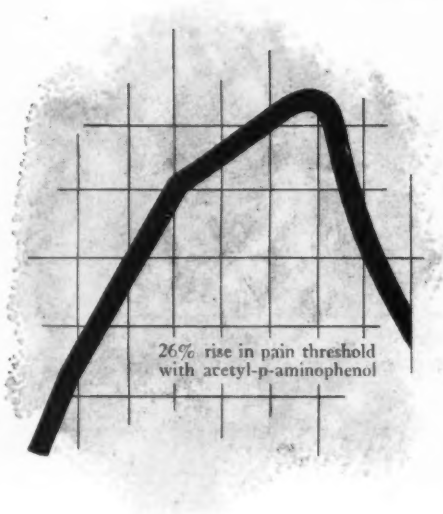

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1. *Seley, S. A.: Am. J. Dig. Dis. 13:238 (July) 1946.* 2. *Rossien, A. X.: Rev. of Gastroenterol. 16:34-52 (Jan.) 1949.* 3. *Rossien, A. X. and Victor, A. W.: Am. J. Dig. Dis. 14:226-229 (July) 1947.* 4. *Batterman, R. C. and Ehrenfeld, I.: Gastroenterol. 9:141 (August) 1947.*

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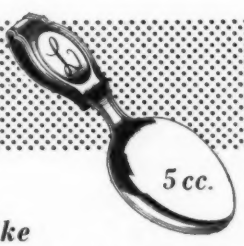

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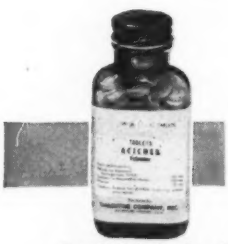

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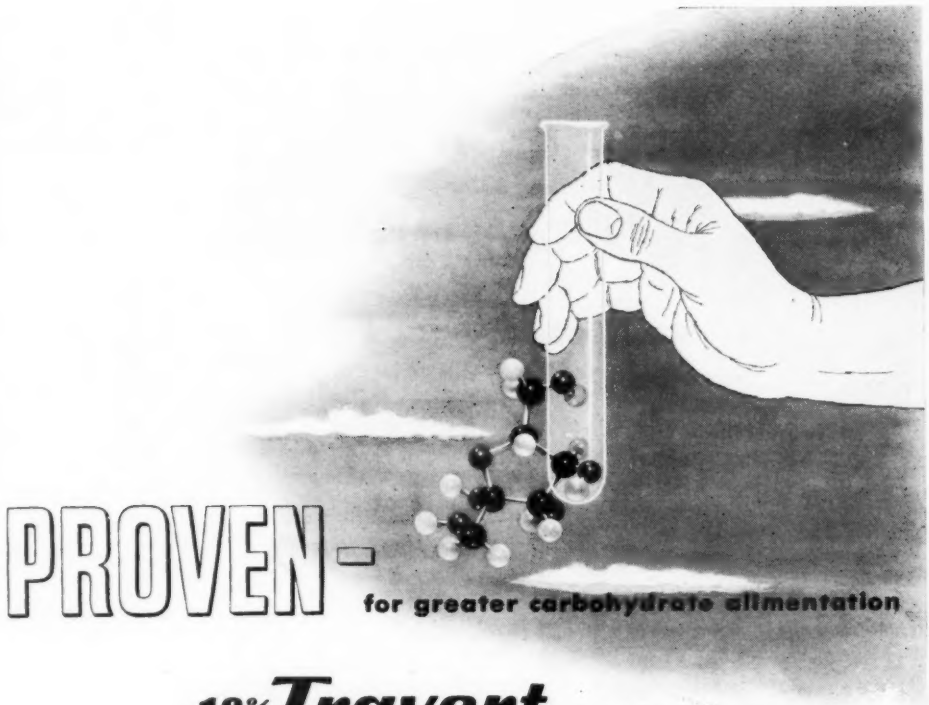

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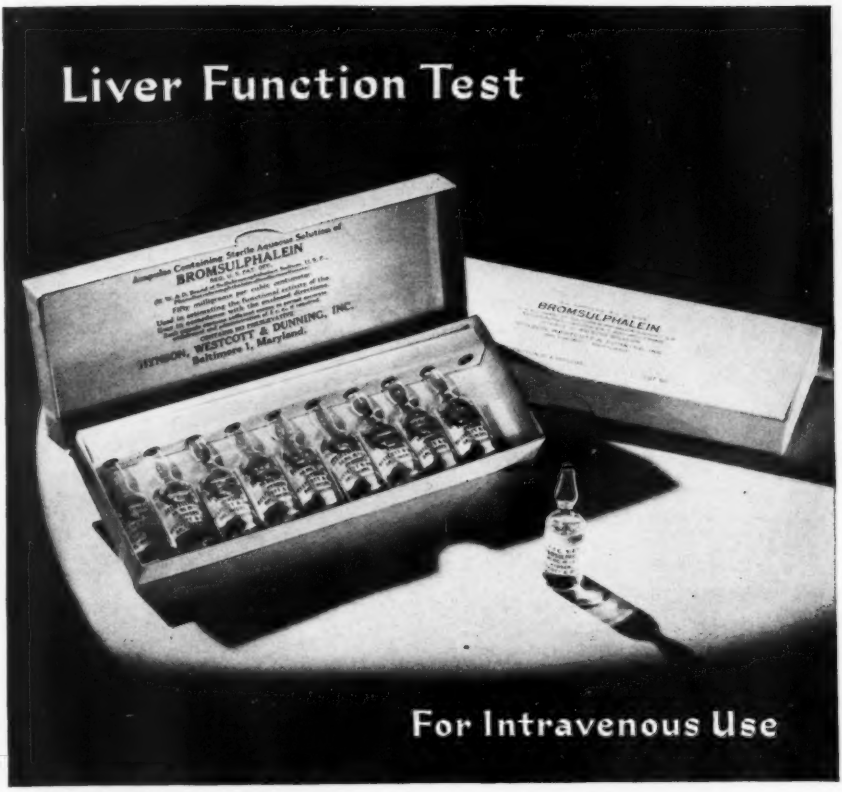

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FURTHER OBSERVATIONS ON CORTISONE AND ACTH AS THERAPEUTIC AGENTS*

By ROBERT E. STONE, M.D.†

and

TOM D. SPIES, M.D.

Birmingham, Alabama

The purpose of our talk is to assist the practicing physician in bridging the gap between the initial stages of investigation and those of the practical clinical application of ACTH and cortisone as therapeutic agents. In the course of this talk we shall discuss the effect of ACTH and cortisone in uncomplicated rheumatoid arthritis, in arthritis associated with iritis, and in arthritis associated with psoriasis. Also, we shall discuss their effect in some types of dermatitis and shall point out the signs and symptoms of overdosage of these hormones. We can best do this by arbitrarily selecting certain representative cases from among more than 200 patients whom we have treated over a period of more than two years.

The 200 patients selected for over-all study were chosen because they had a severe illness that would not respond to any other treatment. Our objective in administering either cortisone or ACTH to such patients was to induce the greatest improvement with the smallest possible dose in the shortest possible period of time. Many of the results have been striking and, in many instances, the patients have been able to resume work and a normal way of life even though they were not completely and permanently rehabilitated.

We make many laboratory determinations before, during, and after treatment but none of them gives us enough information to understand why either ACTH or cortisone appears to correct the defects in the cells. As far as we can see, in no instance is the disease itself eliminated by therapy. It appears that these hormones muster the chemical forces of the body so that the affected cells can better respond against the causative agent. Like other investigators, we know little of the basic mechanism by which these hormones produce an amelioration of symptoms.

Since we already had learned that in many patients treated with ACTH or cortisone improvement was greater when they remained ambulatory, only one of this large series of cases was hospitalized (she had severe rheumatic fever with associated pancarditis and chorea). In the beginning, many of the patients were helpless and had to be carried, or required almost constant attention of some sort or another; but, since our main objective was to study these therapeutic agents under conditions existing in general practice, they were not hospitalized.

The physician who has the day by day problem of the medical management of patients who should be treated with cortisone or ACTH has a most difficult and complex problem facing him; yet, he cannot ponder long. We think that our illustrated cases will be helpful to him.

Case 1.—S. C., a 55-year-old white man, was brought from a hospital to the clinic in an ambulance. He was in acute distress. Three weeks previously he had an acute onset of pain and swelling beginning in the left foot and ankle. All the other joints rapidly became affected. They became painful, hot, swollen, and tender; movement caused excruciating pain. His physician prescribed frequent injections of penicillin and morphine and administered salicylates orally, but this therapy had no effect. The fever and general malaise increased. The pulse rate was 128 per minute or above; temperature 101° F. or above. His blood pressure was normal and the general physical examination was essentially negative.

Laboratory findings were negative except for the erythrocyte sedimentation rate which was 59 mm. per hr. (corrected).

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*Read in Section on General Practice, Southern Medical Association, Forty-fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

*From the Department of Nutrition and Metabolism, Northwestern University Medical School, Chicago, Illinois. Studies in Nutrition at the Nutrition Clinic, Hillman Hospital, Birmingham, Alabama.

*This study was supported by grants from the Clayton Foundation for Research.

*The ACTH was furnished by the Medical Department of the Armour Laboratories; the cortisone was furnished by the Medical Department of Merck & Co., Inc.

†Clayton Foundation Fellow.

When he first came to the clinic, we made a diagnosis of acute "rheumatism." He was given an initial dose of 300 mg. of cortisone intramuscularly and thereafter he was given daily doses of from 100 to 150 mg. until he had received a total of 2900 mg. in twenty-two days. Within twenty-four hours after the first injection, he volunteered that he had great relief from pain and it was obvious that the swelling of his joints was subsiding. Within forty-eight hours his temperature returned to normal. After twenty-eight days of therapy, he was walking without difficulty and had no limitation of any of his joints. Then cortisone was discontinued; much to his surprise, there was no tendency to relapse. He went into remission with no apparent residual disability. He returned to his work as an engineer on a diesel locomotive and has not missed a day's work since (twenty-five months).

Case 2.—S.H., a 52-year-old white man with severe rheumatoid arthritis of two years' duration, was brought to the clinic. During these two years he had been hospitalized elsewhere because of arthritis of both elbows, knees, hips, hands, and shoulder joints. He had had many kinds of therapy ranging from salicylates to gold "shots" but he said that none of these materials had given him relief.

The affected joints were tender and swollen and locomotion was much impaired. The laboratory findings were negative except for the erythrocyte sedimentation rate which was 44 mm. per hr. (corrected). We explained to the patient that we would treat him if he would remain ambulatory, live at home, and arrange to come to the clinic every day when necessary.

He was given an initial dose of 300 mg. of cortisone intramuscularly, then 100 mg. daily for two weeks. By this time complete relief of symptoms was obtained. Two weeks later when the joints again became painful and swollen, he was given 15 mg. of ACTH four times daily for ten days in sterile saline, and he again had complete relief of all symptoms. Clinically, no difference between the effect of cortisone and of ACTH could be detected. In the following seven months at intervals of from two to five weeks, he had several courses of cortisone therapy lasting from one to two weeks. During these periods of therapy the dose varied between 1000 and 1600 mg. (the average monthly dosage was approximately 1 gram). Nine months after the initial period of cortisone therapy his symptoms did not reappear. He noted a complete range of motion in all his joints and completely restored function. His physical activity became greater than it had been for several years, and has remained so for more than a year. During this time the erythrocyte sedimentation rate has not been higher than 12 mm. per hr. (corrected). As can be seen in *Figure 1*, there has been no x-ray evidence of progression of the arthritic process during the period of observation. He is symptom-free and has worked without interruption.

Case 3.—L.H., a 57-year-old white woman, was brought to the clinic severely ill with arthritis. She had been ill since 1940, and by 1947 she had general disability. Various types of treatment, including gold salts and salicylates, had failed to give her relief. When we first saw her, she had severe arthritis affecting the joints of the hands, wrists, elbows, shoulders, jaws, hips, knees, ankles, and feet. She had periarticular swelling, tenderness, and great limitation of motion. Laboratory findings showed hypochromic anemia and an erythrocyte sedimentation rate increased up to 52 mm. per hr. (corrected).

She was treated with ACTH, 15 mg. intramuscularly at intervals of six hours until a total of 240 mg. was administered. There was beginning relief of symptoms within twenty-four hours and complete relief before the final injection. Functional improvement was remarkable and the erythrocyte sedimentation rate decreased from 52 to 18 mm. per hr. (corrected). Four days after the cessation of therapy, a relapse began but it did not reach pretreatment severity for about six weeks. Six months later treatment with cortisone acetate was begun. She received a total of 1025 mg. in nine days and her response was as dramatic as it was before. During the next ten months she received a total of 10.4 grams of cortisone given at intervals. Between courses of therapy she had from two to six weeks in which she received no cortisone. She responded to each period of treatment and relapsed soon after it was discontinued. After each period of therapy with cortisone, we encouraged her to take salicylates orally and they seemed of great benefit in delaying the necessity of cortisone therapy. She became more and

FIG. 1, CASE 2

At the left is an x-ray film of the right hand before treatment with cortisone and ACTH and at the right is an x-ray film of the same hand taken two years later. Note that there is no significant change in the interim.

more able to resume her household duties and general activities. For eleven months she has been in remission and free of all symptoms except transient soreness and stiffness of the joints. She now does all her own housework despite the chronic changes resulting from the arthritic process.

Case 4.—C.D., a male college student 23 years of age, was brought to the clinic with severe rheumatoid arthritis of three years' duration. He appeared very ill and could scarcely move. The hands, elbows, wrists, shoulders, knees, ankles, and feet were greatly swollen. There were subcutaneous nodules over many of the bony prominences. He had generalized lymphadenopathy and severe muscle atrophy. Laboratory examination showed an increased sedimentation rate and hypochromic anemia.

He was given a total of 300 mg. of ACTH, ten injections at six-hour intervals. He improved remarkably. The periarticular swelling decreased greatly and the range of motion increased. His appetite increased and he gained 6 pounds in body weight. The subcutaneous nodules became smaller and the lymph nodes decreased in size and tenderness. Within a week after the final injection of ACTH, there was a slight return of symptoms. Despite this, he started his second college year and, with the relief obtained from salicylates, he finished the fall term. During the Christmas vacation he was re-examined but no further therapy was given. By the end of May his arthritis had relapsed to a degree of severity similar to that observed on his initial visit. He was treated with cortisone, 150 mg. daily for ten days, and he responded promptly. He has been able to finish his college course and has taken an average of about 1 gram of cortisone monthly. Between each course of therapy he has had from two to six weeks without therapy. His arthritis has shown no tendency to undergo remission, but he has graduated from college and has begun postgraduate study. All observers and his family agree that he could not have finished his college work without the aid of ACTH and cortisone.

Case 5.—V. T., a 43-year-old white woman, came to the clinic with severe generalized arthritis of eight years' duration. The onset was sudden and for several years she had had severe disability and acute exacerbations. There was disability of the hands, wrists, elbows, shoulders, jaws, spine, hips, knees, ankles, and feet. These joints were swollen and tender and were limited in range of motion. There was considerable atrophy of the muscles. Laboratory studies showed an erythrocyte sedimentation rate of 69 mm. per hr. (corrected) and a mild hypochromic anemia.

During a period of two and a fourth years she has been given a total of 5 grams of ACTH and 10.5 grams of cortisone. The ACTH was given in amounts of 10 or 15 mg. intramuscularly four times a day for six to ten days. The cortisone was given intramuscularly at a dosage level of 100 mg. for fourteen to seventeen days. After each course of treatment, she had great relief of pain and was able to resume many of her household duties. She has never developed any evidence of a remission or any symptoms of overdosage. X-ray films of the hand *(Fig. 2)* show definite evidence of progression of the destructive changes as contrasted to films taken when treatment was first initiated. When the patient had to resort to a wheel chair, treatment was always initiated and she promptly improved so that she could resume her usual activities. It is the impression of all observers that the severity of this woman's arthritis was such that she probably would have been bedridden had she not been treated. Only time will give us a final evaluation, but we can conclude that she has been given several additional years of activity.

Case 6.—P.W., a 28-year-old married woman, was brought to the clinic with acute manifestations of rheumatoid arthritis. She was free from all symptoms of arthritis until two weeks following the birth of her first child. Then, she became almost disabled from the pain, tenderness, and swelling of all the major joints of her body, and she had no relief of these symptoms until after she became pregnant with her second child three years later. The symptoms of arthritis disappeared soon after she became pregnant and did not recur until two weeks postpartum. She suffered a great deal during the next three years until she became pregnant again and her symptoms disappeared. Two weeks after the birth of the child, she had a relapse with symptoms more severe than ever and was brought to the clinic.

Laboratory findings were essentially negative except for a hypochromic anemia and an elevated sedimentation rate of 60 mm. per hr. (corrected).

FIG. 2, CASE 5

At the left is an x-ray film of the right hand before treatment and at the right an x-ray film of the same hand two years and three months later. Note the increase in the destructive changes in some of the joints, especially the proximal interphalangeal joints of the fingers despite the administration of a total of 10 grams of cortisone and 5 grams of ACTH.

It was decided to administer cortisone. She received a total of 1½ grams, 100 mg. intramuscularly a day for fifteen days. Within twenty-four hours after the first injection, she slept better than she had in many weeks and, on awakening, her joints were less stiff. By the seventh day of therapy the swelling of her joints was greatly decreased and they were less tender. The symptoms of arthritis began to return three weeks after the last injection of cortisone, though they did not reach the pretreatment severity for about sixteen weeks. At that time she was treated with ACTH, 15 mg. intramuscularly four times a day for six days. Again she responded to treatment, and again she gradually relapsed.

The patient could not tell any subjective difference between the relief obtained from pregnancy, that obtained from cortisone, and that obtained from ACTH.

Case 7.—C.H., a 66-year-old white man with severe generalized arteriosclerosis and rheumatoid arthritis, was brought to the clinic for treatment. He was given 20 mg. of ACTH intramuscularly four times a day for four days. During this period he had great relief of pain and tenderness of his joints and the stiffness disappeared. He began to develop pitting edema and gained 8 pounds in body weight, and we discontinued treatment. Then, the edema disappeared in four days and his body weight returned to the pretreatment level. Two weeks later he relapsed and was given 100 mg. of cortisone intramuscularly daily for ten days. Again he obtained relief from the pain and stiffness of his joints, and again pitting edema developed and his body weight increased. As is shown in *Figure 3*, his ankles swelled; you will note that within twenty-four hours after treatment was terminated, he rapidly lost fluid, as can be seen in the gallon jug showing the urine excreted in twenty-four hours, and his ankles became normal in size. Following cortisone therapy, his symptoms were ameliorated and he returned to work before they reappeared in severe form two weeks later.

On two occasions when he was in relapse, we gave this patient a low salt diet; he was given all his meals in the clinic under the supervision of a dietitian. During one of these relapses he was given cortisone in twice the amount he ordinarily received, and during another relapse he was given ACTH in twice the amount he ordinarily was given. On both occasions he had a striking amelioration of symptoms, and as long as he ate the low sodium diet, he did not gain weight or develop edema.

This patient has never remained free of symptoms for more than six weeks after the termination of therapy. Nevertheless, he was able to continue working until not long ago when he underwent a major surgical operation and came through it satisfactorily. At the present time he is convalescing and has not returned to work.

Case 8.—N.D., a 50-year-old white woman, came to the clinic with rheumatoid arthritis of six years' duration. Until six weeks previously, she had had intermittent attacks, none severe, and none lasting more than a few days. Then, suddenly, without any warning, she had an exacerbation which struck particularly her left hand, wrist, and elbow, with the result that they were completely disabled. As can be seen in the colored illustration (*Fig. 4*) the left hand before treatment is swollen and red; seven days later after she had received a total of 750 mg. of cortisone by injection, one can see that the swelling and hyperemia has almost completely disappeared. She could remove the ring on one finger, and a ring not visible in the first picture can be seen in the second one. Cortisone therapy was continued until she had received a total of 1.5 grams in a period of fourteen days. By this time all her symptoms had disappeared and she could use her hand and arm as well as she had been able to use it before the onset of arthritis. The erythrocyte sedimentation rate decreased from 59 to 18 mm. per hr. (corrected). Since that time (three months ago), she has had no treatment. There has been no recurrence of symptoms of arthritis and she has been able to do all her own housework. This case illustrates rather dramatically what can be done to restore function of the joints promptly when cortisone or ACTH is ad-

FIG. 3, CASE 7

At the left, edema which appeared after patient had received 700 mg. of cortisone intramuscularly over a period of five days. When cortisone was discontinued the edema rapidly cleared and the gallon jug shows the amount of urine passed overnight as can be seen at the right.

ministered in an acute episode before muscle atrophy has developed.

Case 9.—B.A., a 66-year-old white man with rheumatoid arthritis of more than five years' duration, was brought to the clinic because of severe disability. He had severe periarticular swelling, excruciating tenderness, and limitation of motion of all the joints of the extremities. His erythrocyte sedimentation rate was 59 mm. per hr. (corrected).

He first was treated with 20 mg. of ACTH administered intramuscularly four times a day for four days. This small amount of therapy was followed by a great relief of pain and by a decrease in the swelling of the tissues and he was able to walk, whereas previously he had to be taken from place to place in a wheel chair. He became self-sufficient and obtained part-time work. Six weeks following therapy a relapse began. In *Figure 5* the colored picture on top shows chronic swelling of the hands with incomplete closure. Contrast it with the one below after he had received a total of 1200 mg. of cortisone intramuscularly in divided doses over a period of ten days. After this therapy, he was able to do part-time work; his erythrocyte sedimentation rate decreased to 20 mm. per hr. (corrected).

This patient has been under observation and treatment for a period of two and one-fourth years. During this time his arthritis has been complicated by several bouts of pneumonia and by rather severe hypochromic anemia. Antibiotic therapy for pneumonia was fairly successful. The administration of iron for the anemia has accomplished rather little. Despite these complications and despite the fact that he never has gone into complete remission, ACTH and cortisone have kept him ambulatory and almost free of pain, whereas prior to therapy he was confined to a wheel chair much of the time and was unable to care for himself.

Before discussing a case of arthritis complicated by psoriasis and another case complicated by iritis, we wish to discuss three cases with skin disorders and one with acute rheumatic fever. (This patient with acute rheumatic fever was the only one in our large series of cases who was hospitalized.)

Case 10.—E.P., an 8-year-old colored girl, was admitted to the hospital on May 3, 1950. During the previous week she had had a mild sore throat. Twenty-four hours prior to admission, she became acutely ill with a more severe sore throat, pain and swelling of ankles and knees, soreness of calves of legs, temperature elevation, and general malaise. She vomited several times, and twitching of muscles of her face was observed.

She appeared acutely ill. Her temperature was 102.6° F.; her pulse rate was 128 per minute; respirations were 24 per minute; and blood pressure was 92/62. Her tonsils were enlarged and injected; lymph nodes generally were slightly enlarged; heart size and sounds were normal, the rate was rapid, and an indistinct murmur was heard. The ankles and knees were

FIG. 4, CASE 8

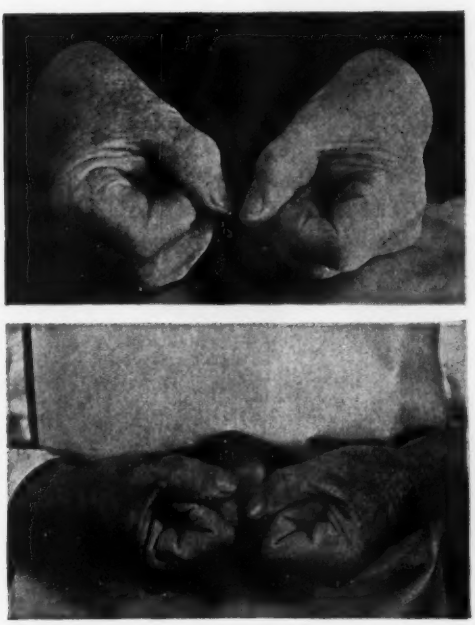

FIG. 5, CASE 9

slightly swollen and warm; involuntary irregular twitching of the muscles of the face and movements of fingers were noted; her teeth were typical Hutchinson's.

The initial sedimentation rate was 30 mm. per hr. (corrected); white blood cell count 17,100; repeated blood Kahn was positive; spinal fluid was negative; electrocardiogram was normal except for rate of 128 per minute.

Initial therapy consisted of salicylates, penicillin, and vitamins. Procaine penicillin, 300,000 units, was given intramuscularly daily for ten doses. Then, aqueous solution of penicillin, 50,000 units intramuscularly at three-hour intervals for a total of 6,000,000 units, was given. After several days, her temperature dropped to between 99 and 100° F., where it remained during the second week; it was a little higher during the third week; and it was 100-101° F. during the latter part of the fourth week. During this latter period she became much worse: more severe choreiform movements were generalized; she was unable to sit up or to feed herself; talking and swallowing were becoming increasingly difficult; her heart rate increased to 150-170 per minute; rheumatic nodules were present over the bony prominences of the joints of the extremities, as can be seen in the colored illustration (*Fig. 6*) there was slight swelling of hands, wrists, elbows, knees, and ankles. Her condition was considered critical.

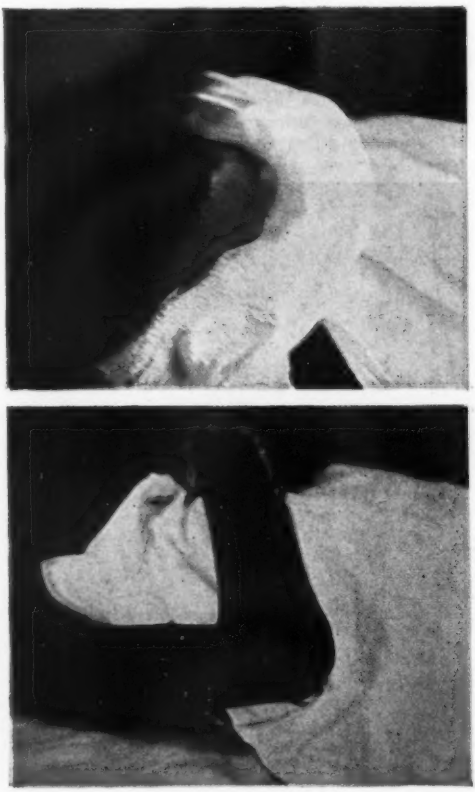

Fig. 6, Case 10

Beginning on May 30, she was given 100 mg. of cortisone intramuscularly daily for twenty-one doses, making a total of 2100 mg. During the first week of therapy, she improved remarkably. By the twelfth day of cortisone therapy, the chorea had cleared entirely, she was able to sit up alone and to feed herself, and swallowing and talking were easy. The swelling of joints had subsided and the rheumatic nodules had disappeared. There was some decrease in her temperature, but it remained between 99 and 100.2° F. Her heart rate remained rapid, 120-140 per minute. The sedimentation rate was 32 mm. per hr. (corrected) on the first day of cortisone and 4 mm. per hr. (corrected) on the eleventh day.

About seven days after cortisone was discontinued, her general condition became worse; her temperature remained elevated to 100-104° F. for twelve days; her heart rate remained rapid and physical signs of heart involvement became more definite. Repeated electrocardiogram showed no further changes. Blood cultures were negative. It was notable that there were no signs of a recurrence of chorea or of arthritis.

Therapy with penicillin, aureomycin, and salicylates was begun. For about two weeks her course was difficult and then gradually she improved. A progress note on the eighth week reported enlargement of the heart and harsh systolic murmurs audible in all areas; the rate was 150-160 per minute and blood pressure was 90/60. She was released on the seventy-sixth day after admission.

There is no record of recurrence of rheumatic arthritis or of chorea following release from the hospital in July 1950. However, she was hospitalized twice in September 1951, once for five days because of acute follicular tonsillitis, and then eight days later for "acute rheumatic carditis" and symptoms consistent with congestive failure.

An important point to be learned from this case is that cortisone relieved the fever, chorea, rheumatic nodules and, in general, the symptoms associated with acute rheumatic fever. Yet, as can be seen in the x-rays shown in *Figure 7*, the heart increased in size and a harsh systolic murmur appeared over the pericardium while she was taking cortisone. Her pancarditis is evident a year and a half later, although she has not had joint symptoms or rheumatic nodules during this time.

Case 11.—J.K., a 27-year-old white woman, first came to the clinic because of "eczema" of about eight months' duration. She had had asthma for about fifteen years. In July 1950, at the time of a severe attack of asthma, an itching, burning, weeping dermatitis appeared over the dorsum of the hands and fingers, all surfaces of the wrists and distal forearms and, to a slight extent, the flexor areas of the elbows and of the lower extremities. She had received penicillin injections and several ointments without definite benefit. Soap and water, particularly dish water, aggravated the dermatitis.

The lesions were thick, desquamating, crusting, and weeping, and there were fissures over the extensor surfaces in the region of the joints.

During the first two weeks she was instructed to use

cool compresses of boric acid solution three times a day and to take an antihistamine compound (benadryl®), at first orally and then also locally as an ointment. Little, if any, beneficial effect was noted. Pyribenzamine® ointment likewise was ineffective.

During the next two weeks cortisone ointment* (25 mg. of cortisone per gram) was applied to the lesions of the hands, wrists, and distal forearms in liberal amounts and covered loosely by gauze dressings once a day. The symptoms were satisfactorily controlled, and at the end of two weeks the lesions were at least 90 per cent healed. The cortisone ointment was discontinued.

Two days later, after a difficult day of washing and ironing clothes and following another attack of asthma, itching and burning of hands recurred. The next morning there were raw, oozing lesions on the hands and fingers but not so extensive as before.

Therapy with cortisone ointment (but 5 mg. instead of 25 mg. of cortisone per gram of ointment base as previously used) was started. An additional period of four weeks' therapy was necessary for satisfactory healing to take place. Since that time (total period: six weeks of cortisone therapy locally), no further treatment has been required. On occasion, she has had mild itching and burning of the hands but no recurrence of the lesions.

As can be seen in the colored illustration *(Fig. 8)*, the application of an ointment containing cortisone is effective in relieving her lesions. This observation that cortisone has a definite healing effect at the site of application is of great importance for future studies of this material.

Case 12.—I.C., a 61-year-old white woman, came to the clinic complaining of itching of her skin. For several years following the death of her husband, she had been very nervous, tense, and emotionally unstable and, on occasion, had urticaria. In October, 1950, a small area of itching dermatitis appeared on the dorsum of the right hand; it cleared on application of an antihistamine ointment. Soon afterwards, an acute dermatitis of the ears and circumauricular areas developed overnight and spread in a day or so to contiguous areas of the neck and face, including the eyelids. There was intense itching and burning, slight to moderate swelling, mostly of the ears, and slight pain and weeping; it was worse at night while she was recumbent, interfering with her sleep.

She appeared very tired, nervous, and tense. Dermatitis in the areas noted was severe, with swelling, injection, weeping, crusting, and scratch marks. The ears were most severely involved, and the eyelids least.

*Cortisone skin ointment:
0.005 gram cortisone acetate
0.566 gram carbowax
0.224 gram distilled water
0.205 gram zinc stearate
1.000 gram

(Top) X-ray film of the heart on the first hospital day. (Center) Repeat film 45 days later. (Bottom) Film obtained 15 months later showing cardiac enlargement which confirms the clinical impression of progressive rheumatic pancarditis, despite control of acute rheumatic arthritis and severe chorea by cortisone therapy, 2100 mg. in 21 days, early in the course of the disease.

FIG. 7, CASE 10

As can be seen in the colored illustration *(Fig. 9)*, the intramuscular injections of cortisone were most effective. They were given as follows: 100 mg. the first day, 150 mg. daily for five doses, 125 mg. per day for two doses, and 75 mg. for one dose, making a total of 1175 mg. Her symptoms were more satisfactorily controlled, and healing of the lesions was progressive. By the tenth day all swelling had subsided and the broken surface had healed; the injection had not entirely subsided. After this, there was, on occasion, mild itching and burning; however, for the following eight and one-half months, no further breakdown of the skin occurred even though she had no therapy.

Case 13.—E.M., a 35-year-old white woman, was given 1500 units of tetanus antitoxin intramuscularly. A skin test prior to the injection was negative.

Six days later she had an onset of aching of the knees, anorexia, and general malaise. One day later an area of redness and itching appeared about the site of injection on her arm, and forty-eight hours later large urticarial lesions were scattered over all extremities and the lymph nodes of the axillae were sore.

Seventy-two hours after the onset, urticarial lesions covered most of the extremities; the wrists, elbows, and knees were painful and slightly swollen and the regional nodes were enlarged and tender. At this time therapy with ACTH was begun. She was given 20 mg. for four doses, 30 mg. for two doses, and 25 mg. for five doses at six-hour intervals, and finally 25 mg. for three doses at twelve hour intervals (a total of 340 mg. of ACTH in saline solution).

Relief of symptoms and fading of skin lesions began within one hour after the first injection of ACTH. Three hours later she returned to her work. Just before the second injection, a few urticarial lesions reappeared on her hands; then, later in the evening prior to the third and fourth injections, more severe skin lesions were noted. With the larger doses of ACTH on the second day of therapy, there was better but not complete control of the dermatitis; new lesions broke out near the time of a scheduled injection and faded out soon afterwards. The peak of severity was passed by the third day of therapy, and from this time on, improvement was rapid.

This patient illustrates the great relief which can be given persons who have serum reactions and other similar conditions. She has not shown any evidence of hypersensitivity to anything in the year that has elapsed since she was treated.

The last two cases are of great interest because they show what may happen following ACTH and cortisone therapy when the patient has arthritis with such complications as psoriasis or iritis.

Case 14.—M.J., a 31-year-old white woman, has had psoriasis since 1930 and arthritis since 1935. The dermatitis began acutely about two months prior to her menarche, became generalized, and then subsided somewhat five months later. Since that time, however, she has never been entirely free of it. There is a tendency for the lesions to flare up in the winter months and to clear in the summer. For some time

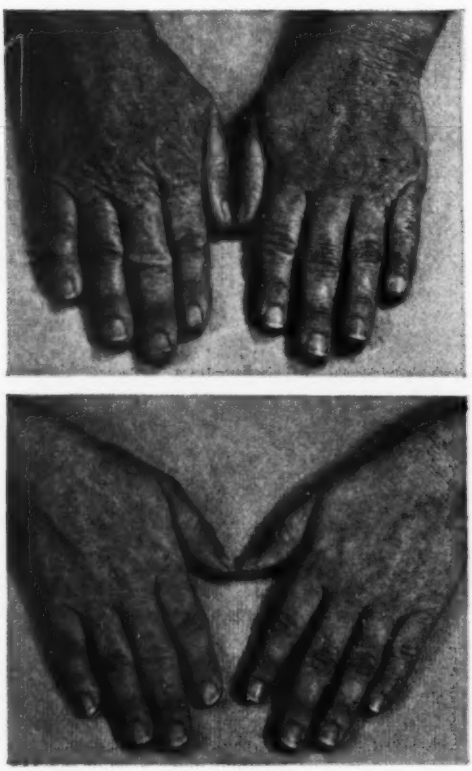

FIG. 8, CASE 11

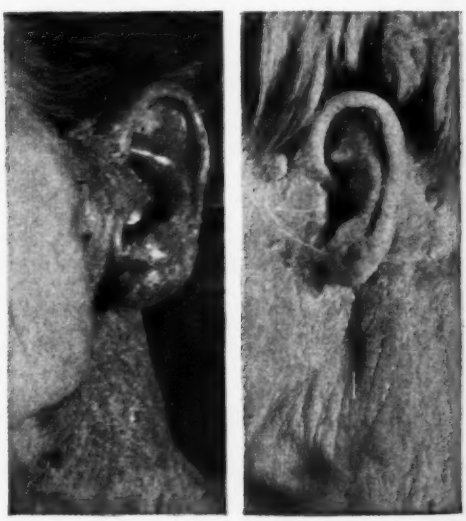

FIG. 9, CASE 12

prior to coming to the clinic, more than two-thirds of the trunk, the scalp, and parts of all extremities were involved. Various degrees of itching, burning, and scaling were noted.

The arthritis began in one toe, where it was localized for one and a half years; then it gradually spread to the joints of the fingers, hands, wrists, elbows, shoulders, upper and lower portions of the spine, knees, hips, and ankles. The joints of the hands and feet were perhaps most severely affected, resulting in marked impairment of function. Despite this, she finished college and graduate training and has been employed full time as a draftsman.

She has received various forms of therapy, including injections of gold salts, without benefit.

Physical and x-ray examinations (*Fig. 10*) revealed evidence of severe to mild arthritic changes in the joints named above. The destructive and functional disturbances were greater in the joints of the fingers and toes.

Confluent psoriatic dermatitis involved about two-thirds of the trunk; the lesions were pink, indurated, and covered chiefly by white scales. There was similar but less extensive involvement of the scalp and all extremities noted.

Her blood counts were within normal range; the sedimentation rate was increased moderately.

Since February 1950, she has received three courses of therapy with ACTH in normal saline, a total dose of 225 mg. in seven days to 2525 mg. in forty-eight days; four courses of cortisone, total dose per course of 875 mg. to 1250 mg.; there were intervals of from two to ten weeks between these courses of therapy. She responded satisfactorily to each course of ACTH and cortisone. The pain and stiffness of the joints subsided readily. The dermatitis responded less promptly but always subsided significantly, with more pronounced relief of the symptoms arising from the lesions than actual clearing of the lesions. On occasion, a few days after either ACTH or cortisone had been discontinued, the skin lesions flared up and then subsided gradually. During the courses of therapy there was more than 60 per cent clearing of the skin, as can be seen in the colored illustration (*Fig. 11*).

During the two years and over that she has been under treatment, she has shown great improvement in ability to use her arms, hands, feet, and legs, with the result that she can do her work as a draftsman better, can walk better, and can drive her car better than she could prior to therapy with ACTH and cortisone.

Case 15.—J. N., a 22-year-old white man with rheumatoid arthritis of six years' duration, came to the clinic because of photophobia and excruciating pain of his eyes. He had always been in perfect health except for a low grade, chronic, rheumatoid arthritis which had affected various joints of his extremities during the past six years. For several days and nights before he came to the clinic, he had been unable to sleep because of the pain arising from the bilateral iritis. Both eyes showed severe and extensive injection. Photophobia was severe; when a light was flashed before his eyes, he screamed with pain. Lacrimation was constant.

After the baseline studies were completed, cortisone ophthalmic ointment* containing 25 mg. of cortisone acetate per gram was put in the right eye only every thirty minutes of the working day. After the first day of therapy, this eye became less painful and appeared less injected. After the second day, it was much less sensitive to light and there was a striking decrease in the injection. After the third day, there was still less injection and sensitivity to light and the excessive lacrimation had almost ceased.

During this time the left eye remained unchanged. Then, treatment with cortisone ophthalmic ointment was started in the left eye and treatment of the right continued. The response of the left eye was just as dramatic as that of the right. Each eye was treated a total of six days, and by this time bright light caused no pain, squinting, or lacrimation. His eyes appeared normal and the patient said they felt normal. The colored illustration (*Fig. 12*) shows his eyes before and after treatment.

The application of cortisone ophthalmic ointment to his eyes had no detectable effect on the arthritis. X-rays of the joints showed them to be in the same

*Cortisone ophthalmic ointment:

0.025 gram	cortisone acetate
0.975 gram	petrolatum (liquid petrolatum 25 per cent; white petrolatum 75 per cent)
1.000 gram	

FIG. 10, CASE 14

X-ray film of the hand and of the foot of a patient with severe demineralization and destructive arthritis. It seems incredible that she is able to walk and to use her hands for fine work.

condition as they were before therapy, and the erythrocyte sedimentation rate remained essentially unchanged.

Without any treatment except as described above, he returned to his work in a cotton mill, where he has worked steadily for two years. The low grade arthritic process still goes on; the erythrocyte sedimentation rate continues to be around 34 mm. per hr. (corrected); but the eye symptoms have not recurred.

DISCUSSION OF CASES

Without exception, there was subjective and symptomatic relief in every patient treated with ACTH or cortisone. Those with acute symptoms experienced rapid and striking relief of pain, stiffness, and swelling of the joints and a great increase in the motility of the joints. The patients' relief from fatigue, weakness, anorexia, general malaise and depression was apparent from their alert and rested appearance. Their general functional capacity improved dramatically, but in some instances, of course, it was limited by the degree of debility and by the alteration of joint structure. Cases 14 and 15 demonstrate the hormonal effects against psoriasis and iritis respectively. One-sixth of the patients with rheumatoid arthritis who were treated during this two and one-fourth year study went into remission, which lasted nine months or more. Those who did not go into remission had great amelioration of their acute lesions, and because of early ambulation and exercise, they did not develop atrophy of the muscles. All the patients were greatly benefited despite the fact that the course of the disease was not reversed in so far as it affects the structure of the joints; the disease tends to follow its

FIG. 11, CASE 14

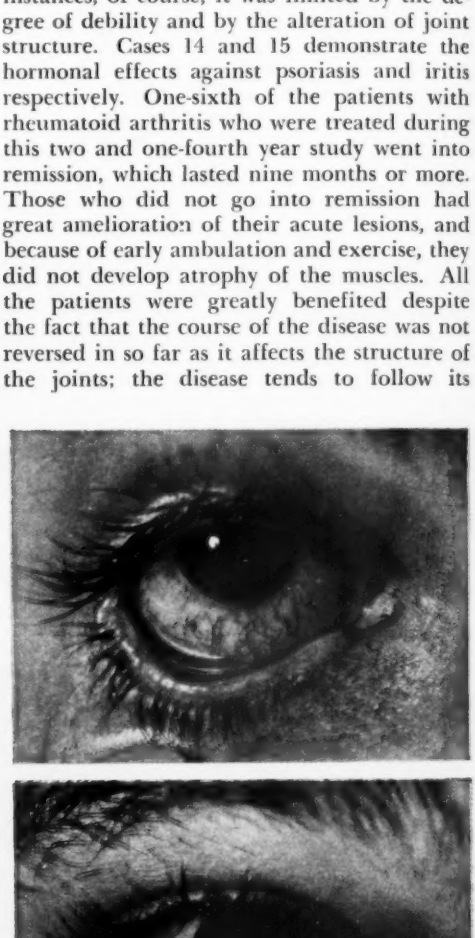

FIG. 12, CASE 15

course. This is clearly demonstrated in Case 5; the patient obtained great subjective relief from treatment and was kept ambulatory so that she did not have to resort to permanent wheel chair status; yet, x-rays of the joints showed that there was an extension of the arthritic process. Case 10 shows that a systolic murmur developed and that the heart increased in size while the patient was under treatment with cortisone; nevertheless, her general condition improved greatly. Case 6, like others we have studied, had relief of the symptoms of arthritis when she was pregnant and when she had cortisone and ACTH. She says that the relief from cortisone or ACTH seems in every way the same as that which occurs during pregnancy. Without exception, patients with asthma have had great relief following therapy. Often their asthmatic attacks do not return for many weeks or months after therapy is discontinued. All the patients whom we have treated with self-limiting conditions such as serum sickness (Case 13) had very great relief from treatment and have had no return of symptoms. In a number of patients we have succeeded in adjusting the nutritional status so that they have been better able to handle their arthritis and other diseases. In some of the very ill patients, however, we could not improve the nutritional status until we gave them ACTH or cortisone, after which they felt better and ate better.

SUMMARY AND CONCLUSIONS

Brief clinical summaries of 15 arbitrarily selected patients who were treated with ACTH and cortisone have been presented. The effect immediately following treatment was similar in all the conditions treated. The signs and symptoms of inflammation which arise from the joints, skin, eyes, nervous system, or the lymph nodes rapidly cleared. In Case 13 one sees symptoms arising from serum reaction suppressed by ACTH, and after treatment was discontinued, there was no recurrence of symptoms. The disease by this time had run its course. The effect of ACTH and cortisone in chronic arthritis is difficult to assess. Remissions, which occurred in one-sixth of our cases, are considered consistent with the natural course of the disease. ACTH or cortisone have no significant effect on permanently altered structure of the tissues. In properly selected cases these materials give tremendous symptomatic relief and increase functional capacity so that resumption of useful activity is possible. It is of very great interest, as is shown in Cases 11 and 15, that certain lesions arising in the skin and eyes respond to the local application of cortisone ointment, thus enabling the physician to treat directly the diseased cells in these locations.

We find that it is necessary for the physician to observe frequently all aspects of the disease. He must seek signs of activity of the disease and adjust the dosage of cortisone accordingly. Every effort should be made to diminish disability before giving cortisone or ACTH and to prolong their effects as long as possible.

In a previous paper[1] on these substances, we stressed that ACTH and cortisone alone are not sufficient to restore the tissues of diseased persons. Proper symptomatic treatment and treatment of coexisting diseases are necessary, and it is mandatory that conditions causing excessive requirement of nutrients be properly treated.

In the medical literature on ACTH and cortisone, which is vast and confusing, an unfortunate term has crept in, that is, side effects. These hormones do not produce side effects. The effects produced are real effects, not side effects, of these hormones. They may produce symptoms of overdosage. Overdosage is a serious problem and one the physician should studiously avoid even if it means, as it sometimes does, that the patient cannot be given the amount of material necessary to relieve his symptoms completely.

In closing, we urge all physicians to seek the etiological diagnosis in every patient he treats, to base the treatment on the cause, and to keep in mind that as potent as these materials are, they are for symptomatic relief. The variability from patient to patient is so great that one cannot at this stage predict the necessary or minimum dose, or whether or not full relief of symptoms can be given. It would appear that all tissues require ACTH and cortisone, or substances that act similarly, for their normal functioning.[2-7] Such substances are important in aiding body

processes in overcoming many afflictions. In this lecture we have touched on only a few of these, but they demonstrate that these materials have a definite, well earned place in practical medicine. A short, intensive period of therapy after making a precise diagnosis will convince the most skeptical physician. He should not consider his patient well treated, however, until a disappearance or decrease in symptoms is noted, and unless no new symptoms have arisen from overdosage.

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DERMATOLOGIC CONDITIONS INVOLVING THE BREAST*

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The breast is involved in many different dermatological conditions. In some of these disorders it is affected in the same manner and as a part of a more or less generalized pathologic process. In other cutaneous diseases, the breast may be the primary site of the morbid condition. Since this organ is one of the most frequent sites of accessible malignancy, and since a number of skin conditions affecting the breast simulate malignancy, it would seem worthwhile briefly to review those disorders with which dermatologists should be familiar. Thus one finds both simple inflammatory and granulomatous processes, as well as various benign and malignant conditions along with a number of miscellaneous diseases.

Contact Dermatitis.—Contact dermatitis of the breasts may be caused by compound tincture of benzoin, which is frequently used to heal fissured nipples, nail polish, nickel, perfume and nylon or other materials from the bra.

Scabies.—In any condition where the patient complains of itching of the breasts and nipples, scabies is the most probable cause. The breasts are involved in most cases of this disease in women. They present numerous small excoriated, papular lesions. Search should be made for the typical burrows on the fingers, hands or flexor surfaces of the wrists. In fastidious persons the scabies may be masked by a nocturnal urticaria and dermographism may even be present.

Eczema.—Eczema of the nipple and areola is most often the accompaniment or sequela of a pre-existing scabies. Usually bilateral, it occurs in young females between the ages of 15 to 30. Characterized by a weeping, itching and crusted process in which an infectious element (streptococcus) may play a role, there is a prompt response to small doses of unfiltered x-ray.

Aside from the postscabetic group of eczemas of the nipple, there is another group of eczematous conditions involving this region and associated with definite evidence of some genital dysfunction. This includes irregular or scanty menses, chronic but low grade inflammation of the uterus and appendages, ovarian and pituitary dysfunction. Such eczemas of the nipple and areola are apt to undergo exacerbations at the time of the menses or during pregnancy. The differentia-

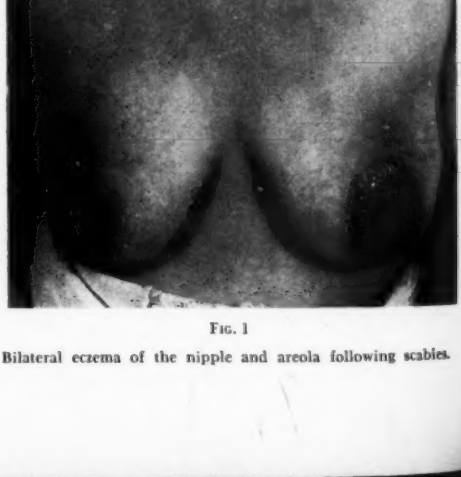

FIG. 1

Bilateral eczema of the nipple and areola following scabies.

*Read in Section on Dermatology and Syphilology, Southern Medical Association, Forty-Fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

*The author is greatly indebted to Miss Avis Gregerson, B.P.A., P.S.A., of the Department of Dermatology, University of Southern California School of Medicine, for invaluable aid in the photographic portion of this presentation.

	Eczema of the Nipple	vs.	Paget's Disease
Location	Usually bilateral		Unilateral always
Occurrence	Younger individuals		40 to 60 years of age
Nipple	Retains shape and prominence		Becomes flattened, retracted and gradually disappears as a surface structure
Course	Intermittent and responds to therapy		Constant and slow relentless progress
Lesion	Soft, moist, pliable and no induration of margin		Rigid, edges hard and abrupt
Histological examination	Nonspecific inflammatory to most pathologists		Typical Paget cells
Effect of x-ray therapy	Small doses, 75-150R have quick beneficial effect		Similar small doses no effect. Even with larger doses results not too striking

This table adopted with modifications from Cheattle, G. L.; and Cutler, M.: Tumors of the Breast, p. 445. Philadelphia: J. B. Lippincott Co., 1936.

TABLE 1

tion of eczema of the nipple from Paget's disease of the nipple is shown in *Table 1.*

Lichenification of the mammary areola is a rare occurrence in dermatitis herpetiformis.

Moniliasis.—Most monilial infections of the breast involve the inframammary regions. Rarely the nipple and areola may be involved along with the axilla. One should suspect moniliasis in the presence of small whitish papulovesicles with superficial erosions.

Epidermophytosis.—In any eczematous involvement of the areola, epidermophytosis must be considered as a possible diagnosis.

Inframammary Eczema.—A somewhat special type of eczematous process occurs in the submammary region. Characterized by an erythematous, glazed eruption and usually accompanied by a tendency for the process to develop transverse erythematous fissures in the inframammary sulcus, this disorder has been termed intertrigo by some and seborrheic dermatitis by others. The French school of dermatology is inclined to view the process as of streptococcal origin. There is little doubt that some cases, especially those with outlying satellite erythematous papules, are due to Monilia albicans.

Such inframammary lesions are generally accompanied by similar lesions in the axillae, about the umbilicus, in the intergluteal sulcus, the retroauricular spaces and the inguinal creases. In all such cases the possibility that the process is primarily psoriatic or due to Monilia must be considered. Examination of the finger nails, scalp, elbows and knees may aid in substantiating or excluding this possibility.

Thus in so-called inframammary eczema, one must consider five possible causative conditions, namely: seborrheic dermatitis, psoriasis, moniliasis, streptodermia and erythrasma.

Dermatitis Artefacta.—The breast is not infrequently involved by self-induced ulcerative lesions.

Pityriasis Rubra Pilaris.—Fine acuminate follicular papules of a pink to rose yellow color may be found on the breast in this disorder.

Acne Conglobata.—It is not uncommon to find a few lesions of acne vulgaris involving the peripheral parts of the breast. Rarely one may see extensive involvement with severe scarring in the type known as acne conglobata.

Hidradenitis Suppurativa.—Involvement of the nipples and areola is said to occur in this disorder of the apocrine sweat glands. In my

FIG. 2

Erythrasma with axillary and inframammary involvement.

experience the process is more frequent on the lateral aspects of the breasts near the axillae and on the breasts below the nipple. Mostly the lesions in their active stage resemble an indolent boil, while epithelial bridges occur as the process tends to quiescence. There is never such severe involvement of the breasts as that seen in the axillae, groins and perianal region.

Infections.—Among the rarer infectious diseases of the breast should be mentioned staphylococcic folliculitis, impetigo and metastatic necrotic mastitis occurring with puerperal sepsis. Erysipelas is uncommon, and still rarer is gangrene of the dependent portions of the breast following erysipelas.

Gangrene.—Gangrene of the breast may occur as a complication of diabetes. In most cases the gangrenous process involves the dependent portion of the breast.

Symmetrical necrosis of both nipples may occur in the puerperium. Katz's case occurred in a healthy female who had a severe postpartum hemorrhage for which she was given pituitrin, adrenalin and ergostabiol. Gangrene of the nipples has also occurred following the use of orthoform dusting powder.

Finally, hemolytic synergistic subcutaneous gangrene may involve the breast. Characterized by progressive spreading granulomatous necrosis with undermined borders and with marked pain, this process may require somewhat radical surgery if there is no response to sulfanilamide or zinc peroxide and the antibiotics. Such a process may follow incision of a breast abscess. A similar but more superficial process has been termed spontaneous necrotic dermatitis by Guy Lane. Gangrene of the breast is a rare complication of thrombophlebitis migrans disseminata.

Diphtheria.—Diphtheria of the breast is rare but may occur. It is usually transmitted by a suckling infant with the same disease. At times a definite greyish-white membrane may be present over the nipple and areola, or in the circumference of the breast. Diphtheria involving the dependent portion of the breast and submammary crease in association with a diphtheria of the vulva, mouth and throat has been noted. Still more uncommon is the association of diphtheria with a scirrhous carcinoma of the breast. Also a rarity is a puerperal mastitis due to diphtheria.

Breast Abscess.—Breast abscess association with scabies is not uncommon. However, when scabies is associated with pregnancy the incidence of breast abscess becomes alarming. The scratching from scabies also leads to various types of superficial abscesses and lymphangitis. All of these bacterial infections tend to develop in the last two months of pregnancy. Breast abscess is a serious condition both because of the infection and also the destruction of the glandular portion of the breast.

Breast abscesses may also be associated with pyogenic infections of the skin in the newborn and on rare occasions their frequency may reach as high as fifteen per cent.

Lupus Erythematosus.—An extremely rare inflammatory dermatosis of the areola is lupus erythematosus. This usually is part of an acute or subacute disseminated type.

Erythema nodosum may involve the breast along with the anterior aspects of the lower legs.

Edema.—In rare instances a marked edematous swelling of one breast may occur in nephritis.

Fistulas and Sinuses.—Chronic draining sinuses near the areola of the breast in women are actually fistulas of the lactiferous ducts occurring in comedomastitis. The condition may be unilateral or bilateral but usually there is only one sinus opening on each breast. This is just medial or lateral to the edge of the areola. The areola is swollen between the sinus opening and the nipple. Squeezing the breast at times produces a thick yellowish discharge from both the sinus opening and from the nipple. Rarely the discharge may be bloody. A probe can generally be passed entering the sinus opening and emerging from the nipple. Total excision of the fistulous tract results in a cure with a minimum of scarring. Histologic study of the excised sinus tract is always indicated.

Persistent sinus tracts on the medial aspect of the breast should arouse suspicion of an osteomyelitis of an underlying rib.

Vaccinia.—Vaccinia of the nipple may occur. It is usually transferred from a successful "take" on the arm of a nursing infant.

Herpes.—Recurrent herpes simplex may appear on the breast. Inoculation herpes

simplex from kissing also occurs. Herpes zoster of the intercostal type often involves the same region. The association of herpes zoster and carcinoma of the breast has been noted. This occurs especially in those patients presenting metastases and who have received radiation.

Molluscum Contagiosum.—This benign epithelial lesion usually the size of a small pea, is most apt to be confused with an ordinary wart. The umbilication or delling of the lesion should give a clue as to the correct diagnosis. Similar lesions are apt to be present elsewhere on the trunk. The histologic picture is characteristic. The condition may be transmitted from a nursing child to the mother or the opposite may happen.

Verruca Vulgaris.—Saner and Semon mention the occurrence of pointed or filiform warts on the nipple and areola. Believing them to belong in the same category as condylomata acuminatum, they advise frequent swabbing of the lesions with 1-4,000 mercury bichloride lotion. If this fails to effect a cure within a few days, a 25 per cent suspension of podophyllin in liquid petrolatum is carefully applied. Irradiation certainly has no place in the treatment of such lesions. Personally I have never observed such lesions about the nipple and areola.

There is a group of disorders involving either the nipple or areola or both, which present either small follicular or perifollicular hyperkeratotic or papillomatous lesions. These include:

Fox-Fordyce Disease.—This is a rare, extremely pruritic disease, occurring mostly in women and characterized by its chronicity, its lack of response to any therapeutic measures yet devised, and by the presence of small papular, follicular lesions situated on the areola, in the axilla and in the pubic area. Apparently a disorder with an endocrine background, it is most common in small thin women with underdeveloped breasts. X-ray therapy may offer temporary palliation, but is by no means curative. I have seen a case which seemed to be controlled by proluton® therapy. Roxburgh reported marked improvement from stilbestrol 1 mg. daily. Others say: "There is no skin abnormality which responds better to estrogen therapy; in fact its administration amounts to an acid test of the diagnosis."

Nevoid Disease of the Areola.—This is a very rare condition which is characterized by a peculiar warty keratosis of the papillae of the skin of each mammary areola. This forms a rather thick cluster of closely grouped brown to black papillomatous excrescences which surround the normal nipple like a wreath. It is probable that in some cases this disorder is actually a hidroadenoma, while other similar cases have been described as an ichthyosis circumscripta. Replacement of the nipples by a depression filled with irregular, horny and verrucous masses has been reported. Isolated follicular keratoses of the nipple may occur. Unilateral cases associated with a hyperkeratotic nevus of the breast have been recorded.

Keratosis of the Nipple.—In keratosis of the nipple the clinical picture is that of crusting of the nipple with an underlying inflammation. Occasionally a superficial ulcer or small fissure may be present. Histologically there is acanthosis, hyperkeratosis, with a mild inflammatory reaction in the cutis.

Follicular Keratoses.—Follicular and perifollicular hyperkeratotic lesions may develop on the areola as the result of vitamin A deficiency.

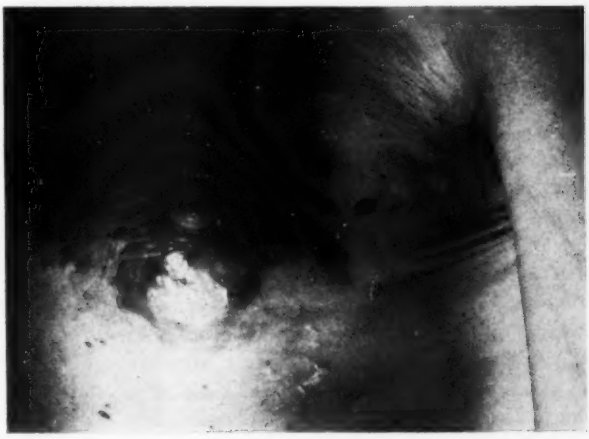

FIG. 3

Carcinoma of the areola. Note intact nipple.

Prepubertal Masses.—Prepubertal enlargement of the breast tissue beneath the areola may occur in boys fourteen to eighteen years of age. The condition is unilateral and is not a gynecomastia. Small doses of male hormone will cause recession of this tender swelling.

The same type of a small tender mass beneath the areola of one breast is also seen in young girls in the prepubertal period. This too, usually is of no significance and is best left alone.

Gynecomastia.—In males, an increase in the size of the breast with enlargement of the nipple, along with a prominence of Montgomery's glands, accompanied by tenderness of the glandular tissue beneath the areola, is known as gynecomastia.

Usually bilateral, it may affect only one breast. Most cases are associated with gonadal insufficiency or liver damage with malnutrition. While accompanying cutaneous manifestations are rare, they do occur. These include the absence of axillary hair, the presence of Dupuytren's contracture, and induratio penis plastica and the cutaneous lesions of types of epidermolysis bullosa acquisita where there is probably liver damage from prolonged and excessive alcoholic intake.

Seborrheic Keratoses.—These yellowish to yellow brown ovoid, pea to dime sized or larger, raised, flat surfaced lesions are particularly prone to involve the trunk, especially the upper part. Practically always multiple, such a condition may give rise to confusion if a solitary lesions appears on the mammary skin. Such a lesion can be excised under procaine hydrochloride with curved scissors so that histologic examination may be made. Even then the pathologist may erroneously consider the lesion neoplastic; especially so, if the seborrheic keratosis has been traumatized or been the seat of secondary infection. A verrucous type of verruca senilis involving the areola has been reported.

Neurofibroma, Fibroma, Lipoma, Papilloma.—Von Recklinghausen's neurofibromatosis in its generalized tumor stage often involves the breast. Solitary fibromas of the areola also occur. Lipomas of the breast sometimes develop into large pedunculated and pendulous tumor masses even to the point of being surgical curiosities. Papilloma of the nipple may reach considerable size.

Neuroma.—Rarely a neuroma may involve the breast, producing a firm, sharply defined, bluish red elevated plaque, which on superficial examination may suggest a keloid or cancer *en cuirasse*. Neuroma of the nipple is exceedingly rare.

Leiomyoma.—Leiomyomas of the breast which are of interest to the dermatologist involve either the nipple or areola. It may cause paroxysmal, but nonradiating pain. Such lesions are usually solitary, subcutaneous and freely movable and ordinarily vary in size from a pea to a hazel nut. The histologic picture is characteristic.

Hidradenoma.—Small cutaneous single or multiple tumors of the nipple and areola may be adenomas of the sweat glands. When solitary and confined to the nipple the lesion may be confused clinically with a Paget's disease. Amputation of the breast has been done because of such an erroneous diagnosis.

Intracystic Papilloma of the Nipple.—This lesion may be suspected when one finds a thin transparent, but firm, pea sized vesicle at the tip of the nipple. If such a lesion be incised, it will collapse with the discharge of several drops of clear serous fluid, and usually a split pea sized nodule will also freely come away. Histologic section is characteristic.

Angioma.—Angiomas occur both in and on the breast. They are most frequently seen in infants and may attain considerable size. In the female infant no form of radiotherapy should be employed because of the marked danger of damage to the secretory breast tissue. One should either employ sclerosing injections or leave the lesion alone as spontaneous disappearance may take place.

There are, however, angiomatous tumors which develop in youth or early adult life, which histologically are benign, but clinically are malignant, and probably of the nature of a hemangio-endothelioma. Recurrences appear soon after repeated surgical excision, and in general, amputation of the breast should be done.

These lesions should not be confused with the ordinary pyogenic granuloma, even though

the latter possesses a somewhat similar microscopic picture and tends to recur if incompletely removed.

Lymphangioma.—A rare benign tumor of the breast is lymphangioma.

Nevi.—Nevus unius lateralis may involve the breast and produce a striking and bizarre picture.

Myoblastoma.—Granular cell myoblastoma develops not only in the skin overlying the breast, but also in the mammary gland itself. In the skin this lesion is a well circumscribed nodule without any clinically distinctive characteristics. Within the breast the lesion very closely resembles carcinoma, both in clinical characteristics and gross appearance. A definite diagnosis can be made only by adequate biopsy. The lesion closely resembles a xanthoma, with which it may be confused clinically because of its yellow color and microscopically because of the presence of large cells with a finely granular cytoplasm.

Keloids.—Keloids occasionally involve the breast surface. The larger lesions occur in Negro women following burns or operative procedures (breast abscesses). Multiple smaller keloids may appear in white individuals following the deeper and more severe types of acne vulgaris. Keloids as well as many other postoperative complications may follow plastic surgical procedures on the breast.

Granulomas: Syphilis.—Chancre of the breast occurs predominantly in women and is a comparatively rare lesion. In the days of the wet nurse, to whom the disease was transmitted by a syphilitic infant, this lesion was not uncommon. At the present time it occurs mostly from inoculation through kissing by an adult of the opposite sex. Such a transmitter of the disease usually presents mucous patches of the mouth. The lesion as it occurs on the breast and about the nipple presents a solitary indurated, painless ulcer. Multiple chancres are rare and so are phagedenic chancres. By the time such a lesion is seen by the physician, the satellite axillary bubo has occurred and the Wassermann reaction is positive. Chancre redux, if it occurs, must be rare. The differential diagnosis between Paget's disease of the nipple and primary syphilis of the same area are shown in *Table 2*.

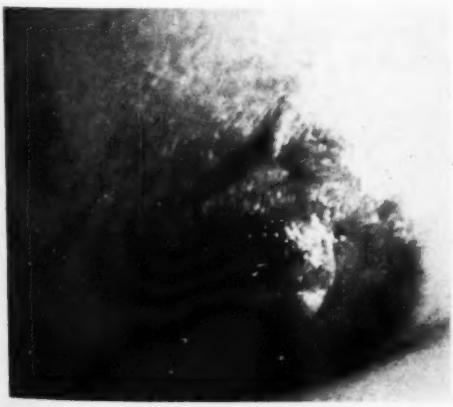

FIG. 4

Primary syphilis, chancre of the nipple.

The mammary skin is involved in the generalized eruption of secondary syphilis. Diffuse syphilitic mastitis is said to occur as a very rare manifestation of late secondary syphilis.

Tertiary syphilis as it involves the breast may exist in two forms: first gumma of the breast, which is ordinarily a single lesion and unilateral. Such a lesion may soften, break down, ulcerate and finally heal with scarring. However, diffuse syphilitic mastitis with marked enlargement of the breast, but usually with no adherence to the skin or retraction of the nipple, has been reported. The most common involvement, however, is the cutaneous nodulo-ulcerative serpiginous gummatous syphilis. Only the untrained eye could mistake this lesion for a carcinoma.

In neurosyphilis severe recurrent paroxysmal pain in the breast occurs as a rarity.

	Syphilis (Chancre) vs.	Paget's Disease
Duration	Short duration with a comparatively large lesion	Progress of disease much slower
Nipple	Retraction not usually present	Retraction or atrophy of nipple
Darkfield examination	Positive	Negative
Biopsy	Granuloma, spirochetes with Krajain's stain	Paget cells
Axillary glands	Enlarged early	Enlarged late
Wassermann	Usually positive by time diagnosis is suspected	Negative, careful if positive

TABLE 2

Tuberculosis.—Tuberculosis of the cutaneous surface of the breast is usually of the variety known as lupus vulgaris. Tuberculosis of the breast proper occurs in several forms and is usually unilateral. It is found predominantly in the female. In the nodular or discrete type as it affects this organ, one may find a solitary lesion lying beneath an unbroken skin and giving the impression of an adenofibroma. Disseminated nodules also occur in the form of large caseating areas which rarely may result in sclerosis. In the confluent type, a necrosis and breaking down of the breast tissue occurs. This is followed by fluctuation and abscess formation with multiple persistent sinuses. Any persistent draining sinus of the breast, even if it follows the drainage of a breast abscess, must be regarded with suspicion. Tuberculosis occasionally coexists with carcinoma.

Sarcoidosis.—Sarcoidosis may involve the breast integument incidental to a more or less generalized eruption. Instances of sarcoidosis confined solely to the breast are rare but do occur. The lesions are either single or multiple, nonulcerating, nonpainful nodules. Biopsy is required to confirm the diagnosis.

Yaws.—This tropical disorder is often transmitted from a nursing child to its mother, the primary lesion appearing on the breast.

Leprosy.—Hypertrophy of one or both nipples is present in a considerable percentage of male lepers. In both the tuberculoid and lepromatous types of this disease the lesions may develop in the skin over the breasts.

Leishmaniasis.—Eczematous lesions of the nipple may occur in orential leishmaniasis (tropica).

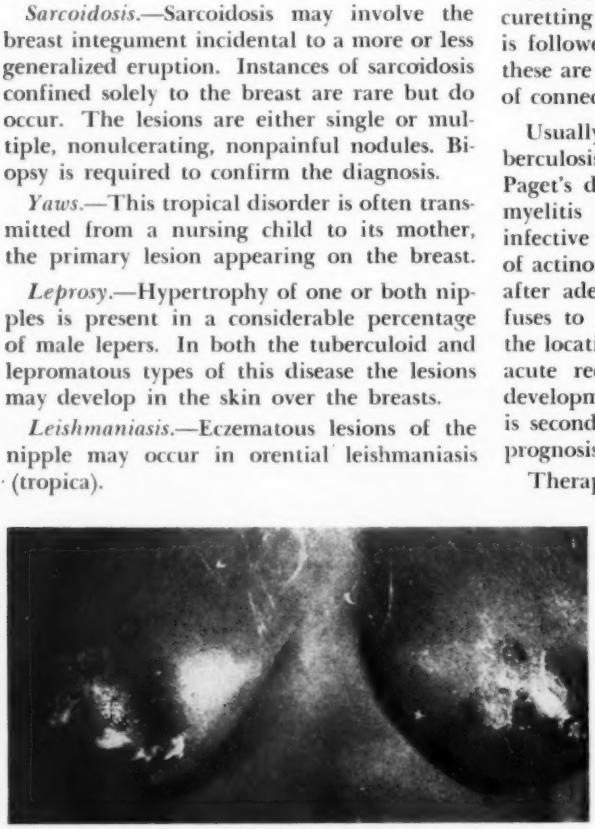

Fig. 5

Bilateral tuberculosis of the breast.

Actinomycosis.—Actinomycosis involving the breast, while rare, occurs most frequently in comparatively young women. In its early stages there is manifested a slowly increasing and well circumscribed induration in the neighborhood of the areola. The condition is painless at first but later softening, tenderness and signs of inflammation develop. This produces the clinical picture of a simple breast abscess. This may discharge spontaneously through the nipple itself or close to the nipple with the formation of a sinus. This process of recurrent abscess formation may alternate with periods of quiescence.

Eventually, however, multiple sinus formation occurs with distortion of the breast and cicatrization of the skin. These sinuses are usually close to the nipple which may be retracted and eczematous.

Clinically there is considerable difficulty in curetting away the granulation tissue. This is followed by marked hemorrhage. Both of these are due to the exaggerated development of connective tissue in the pathologic process.

Usually the condition is mistaken for tuberculosis, carcinoma (which may coexist), Paget's disease of the nipple, gumma, osteomyelitis of the underlying ribs, or chronic infective mastitis with sinuses. The possibility of actinomycosis must be kept in mind when, after adequate drainage, a breast abscess refuses to heal. The three main features are: the location of the disease close to the nipple, acute recurrent abscess formation and the development of sinuses. If breast involvement is secondary to pulmonary actinomycosis the prognosis must be guarded.

Therapy is no longer surgical. Penicillin, streptomycin and other antibiotics as well as the sulfonamides, are indicated and are of great value.

Sporotrichosis.—This process may be nontender, and not adherent to the skin or deeper tissue and resemble a cyst. In other cases a tumor as large as a hen's egg may be present. It is adherent to the skin and hard, except at one point where fluctuation is present. With retraction of the nipple, the whole process resembles a scirrhous carcinoma, which indeed may be pres-

ent. Usually other ulcerative or subcutaneous lesions are present elsewhere on the body. Most of the reported cases have occurred in females past the menopause. The disease responds to potassium iodide.

Paraffinoma.—Paraffinoma of the breasts may present a typical "orange rind" appearance with extensive underlying induration. A history of the injection of melted paraffin is usually obtained. Ulceration may occur, and with the stony hard infiltration present, the process may be mistaken for cancer. Identically the same process is seen in the so-called oleoma's of the breast, following the injection of camphorated oil. In such cases axillary lesions may occur from migration and greatly resemble cancer.

Foreign Body Granuloma.—The introduction of iodized poppy seed oil or colloidal thorium dioxide into the lacteal ducts for the purpose of demonstrating breast tumors (and for differentiating solid from cystic tumors, simple retention cysts from cystic degeneration of the breast, localized from infiltrating growths) has been followed in a few cases by unfortunate sequelae. Multiple abscesses have occurred, especially in the presence of acute mastitis. Extensive fat necrosis requiring mastectomy has been reported, along with severe pain and tenderness. Finally a solitary granulomatous lesion was reported by Mora with a histopathologic picture of histiocytes loaded with granules of colloidal thorium dioxide.

The introduction of sulfonamide powder into surgical wounds of the breast has resulted in the later development of sinuses, and repeated healing and breaking down of such wounds with serous discharge. Histopathologic examination of such wounds reveals a granulomatous reaction with epithelioid cells, lymphocytes and giant cells. These latter are of the foreign body type and some of them contain crystalline inclusions.

Fat Necrosis.—So-called traumatic fat necrosis of the breast is of interest to the dermatologist both because such a lesion usually has definite skin fixation and because similar lesions elsewhere may be seen and diagnosed first by the skin specialist. Fat necrosis involving the breast occurs mainly in obese women (rarely in the male) and usually follows some direct trauma to the breast. Within a few months to one or two years, a painless mass develops, which at first is freely movable, but later fixation occurs. The nipple is seldom retracted. As pointed out by Hadfield, the traumatized subcutaneous fat undergoes a "silent and usually painless sterile autolysis." To this bulk is added an accumulation of phagocytes which are engaged in the absorption of fatty acids, and of fibroblasts initiating repair. Eventually the lesion cicatrizes and any unabsorbed fat and saponification products become enclosed in mature fibrous tissue. A thick-walled cyst containing dark fluid results and calcification is frequent in the late stages. In the typical case the lesion is hard and so adherent to the skin that dimpling and peau d'orange appearance may result. In long standing cases an x-ray of the breast will reveal calcification in the tumor mass. Fat necrosis may also occur in postoperative mastectomy scars following irradiation.

Panniculitis.—Nodular nonsuppurative relapsing panniculitis of Weber-Christian may involve the breast and as such may give the local findings of traumatic fat necrosis.

Finally, there are rare and exceptional instances of ulcerating granulomatous lesions involving the breast in which no diagnosis can be made, even after complete and exhaustive studies. In fact, such a case may be autopsied without obtaining any additional information.

Paget's Disease of the Nipple.—This disease is a definite cancer of the nipple secondary to an underlying intraductal malignancy. It occurs nearly exclusively in women over the age of forty. Clinically there occurs a definite raw, sharply marginated, intensely red, very

FIG. 6

Carcinoma of the left breast with changes in nipple simulating Paget's disease.

finely granular, slowly spreading, eczema-like lesion of the nipple. Even in the earliest cases one usually can see a slight but definite flattening of the nipple. Biopsy gives a unique and characteristic histologic picture. Recently Papanicolaou-stained smears of the discharge from the nipple have been utilized in diagnosis. Mastectomy is indicated as this lesion responds very poorly to x-ray.

Carcinoma which has invaded the surface epithelium of the nipple from a tumor originating either in the nipple or the underlying breast, may be confused with Paget's disease, especially on superficial clinical examination. Such a lesion looks superficial, the nipple is flattened, but there are no hard, abrupt margins. On very close inspection, the surface is composed of small nodules. Spontaneous intermittent hemorrhage from the nipple occurs and the nipple is quite prominent. On histologic examination, Paget cells are absent.

Basal Cell Epithelioma.—The ordinary type of basal cell epithelioma rarely involves the breast.

Superficial Epitheliomatosis.—In superficial epitheliomatosis, there may appear round to ovoid scaly lesions, somewhat simulating psoriasis, but on close inspection a thread-like pearly border is present. Sometimes considered to be Bowen's disease, and by others to be a variety of "extramammary Paget's disease," they are most often the result of ingestion of inorganic arsenicals. Examination of the palms and soles will reveal arsenical keratoses in a high percentage of cases, a fact first pointed out by the author. These lesions are best treated by freezing with carbon dioxide snow or by destruction with electrodesiccation. They are notoriously radioresistant.

Prickle Cell Carcinoma.—Prickle cell carcinoma of the nipple and the overlying breast skin may occur. Rarely the latter may invade the breast tissue, metastasizing to the axillary lymph nodes before producing an ulceration on the surface of the breast. In general this type of cutaneous cancer, while uncommon, is more frequent in the male.

Melanoma.—Malignant melanoma occasionally develops on the breast, rarely on the areola. This highly malignant lesion occurs in both sexes.

Generalized Skin Metastases.—Widespread and even generalized cutaneous metastases are of uncommon occurrence in carcinoma of the breast. Extremely rare are metastases to the gums.

Carcinoma arising from either the sebaceous or apocrine glands on the upper surface of the nipple and areola is very rare. A differential diagnosis from Paget's disease is difficult without recourse to biopsy.

Acquired ichthyosis following metastases of a breast carcinoma to the liver has been noted.

Cortisone.—Cortisone therapy has no effect upon metastatic lesions but does relieve the intense pruritus which occasionally occurs in the radiodermatitis following treatment of such lesions by roentgen rays.

Lymphangiosarcoma.—This newly recognized entity occurs in the upper extremity in an arm which is the site of massive postmastectomy lymphedema. The lesions are frequently multiple, bluish purple to purplish red, and simulate Kaposi's sarcoma both clinically and pathologically. Ulceration and hemorrhage readily occur. There is a long latent period between the removal of the breast and the development of the lymphangiosarcoma.

Scalp and Cutaneous Metastases from Breast Carcinoma.—In breast carcinomas which metastasize to the scalp, there occur round, flat, markedly infiltrated, bald areas of skin which are immovable because of their attachment to the periosteum. Considerable pain and burning may be present. Such metastases may not appear until years after removal of the primary breast tumor. These lesions are usually multiple.

Inflammatory Carcinoma.—A rare but definite clinical entity is the so-called erysipelatoid or telangiectatic carcinoma of the breast. This disease is a diffuse, widespread, superficial carcinomatous infiltration of both the blood and lymphatic vessels. The mammary skin is very reddened, brilliant red, glazed, hot and firm to the touch. The neoplastic involvement may be so acute that the skin appears vesiculated, and rarely, small raised vesicles may actually appear on the skin surface. When seen, there is usually a seropurulent discharge from one or both nipples. Small wonder then, that the inexperienced observer may regard the condition as erysipelas, contact dermatitis, or as a radiodermatitis. Surgery is contraindicated in such cases.

In rare instances metastatic malignancy in the skin of the breast may produce a strikingly similar picture.

Acanthosis Nigricans.—This rare disorder may involve only the nipple and areola producing small hemp seed sized black polygonal, flat papules. The involvement of the nipple and areola occurs in about one-third of all cases of acanthosis nigricans. It is usually bilateral and associated with the presence of similar lesions in the axilla, groins and about the neck. In instances where only the breasts are involved, a differentiation must be made from nevoid disease of the areola.

Cancer en Cuirasse.—This is a term applied to another variety of metastatic carcinoma of the skin, usually, but not always, from a primary breast focus. The skin becomes thickened and sclerotic, resembling scleroderma. Slowly spreading, mainly through the lymph vessels, the process tends to be nodular. The skin may or may not be reddened, and there is not much edema. Because of the slowness of the process, ulceration may occur. There is no true and sharp dividing line between this condition and inflammatory carcinoma.

Lymphoblastoma: Mycosis Fungoides.—The breast may be involved in any stage of mycosis fungoides. However, papillomatosis of the areola and cupping of the nipple, although very rare, occur in mycosis fungoides, and may precede the generalized eruption by several years.

Leukemia.—In one reported case the breasts were enlarged, firm and infiltrated, the overlying skin being tense and shiny.

Hodgkin's Disease of the Breast.—Usually this rarity presents a tumor mass in the breast with or without ulceration. The prognosis is poor.

Miscellaneous Conditions: Hypertrichosis.—Occasionally a moderate growth of hair occurs about the areola. Electrolysis is the only effective treatment. Incidentally lice may be found on such hairs.

Pigmentary Disorders.—Pigmentary disorders of the breast are rare and include argyria, arsenical pigmentation, fixed drug eruptions, hyperpigmentation following body lice, and the pigmented macules of generalized neurofibromatosis.

There is another rare disorder with which dermatologists should be familiar. This disorder is Albright's syndrome or polyostotic fibrous dysplasia. There is a triad of findings with bone lesions which have a marked tendency to be unilateral. There are areas of cutaneous pigmentation somewhat similar to those occurring in generalized neurofibromatosis, but somewhat lighter in color, and with a more irregular outline, and tending to have a segmental distribution which is roughly similar to that of the bone lesions. Sexual precocity may occur in females who mature very early, sometimes menstruating before the age of one year. Incomplete forms of the syndrome exist with only the bone lesions being present, or precocity and cutaneous pigmentation being found with the bone lesions.

Vitiligo.—Loss of pigment may occur in the skin overlying the breast as well as the areola of the nipple. It is associated with rain drop pigmentation; arsenic may be a cause.

Striae Gravidarum.—These are the familiar, smooth, silvery to pearly white or even violaceous, but rarely pigmented or hypertrophic broad linear lesions which are usually associated with previous pregnancies. On the breast they tend to be arranged radially about the nipple. Their causation and prevention have been discussed mostly by obstetricians, and rarely by dermatologists.

Lichen Sclerosus et Atrophicus.—This uncommon dermatosis involves the breast at times. Occurring especially after the menopause, it is characterized by the development of ivory white, smooth, shiny, atrophic plaques. These in turn are composed of groups of irregular, polygonal, flat topped papules which have a central dark comedo-like plug. The histologic picture is characteristic. Clinically it must be differentiated from the atrophic types of lichen planus and localized scleroderma.

Morphea.—A rare but important lesion of the skin of the breast is morphea (localized scleroderma), which, because of the hardness which it imparts to the palpating finger, may be erroneously considered carcinomatous. The skin over the affected area is smooth, dry and shiny. The plaque-like lesion of thickened, indurated, hide-bound skin presents a peculiar

leathery, somewhat yellowish white appearance with a distinct violaceous tint at its periphery. In doubtful cases a biopsy is helpful. The breasts are also often involved in generalized scleroderma.

SUMMARY AND CONCLUSIONS

The breast is involved by many different cutaneous conditions. These include simple inflammatory processes, benign and malignant tumors and a group of granulomatous lesions along with a number of miscellaneous diseases.

Some of these various conditions belong primarily to the surgeon; others belong to the domain of dermatology. However, the dermatologist should be familiar with all of them. Only then can he serve the best interests of the patient.

A modest number of dermatologic conditions affecting the breast have been reviewed and briefly discussed.

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PRIMARY ATYPICAL PNEUMONIA IN CHILDHOOD*

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Introduction and Nomenclature.—Primary atypical pneumonia, or as it is frequently termed, "virus pneumonia," has now become well established as a definite clinical entity. The syndrome is a comparative child of nine years in the long list of well known medical diseases, having first received its official name "primary atypical pneumonia, etiology unknown" from a United States Army commission in 1942. Yet in the brief time since its christening, over 300 articles[1] in the medical literature, both domestic and foreign, have thoroughly defined and delineated its various characteristics.

We would agree with Meiklejohn[2] that the official name is unfortunate, in that since it is a well recognized type of pneumonia today, it is no longer "atypical," and since evidence is accumulating pointing to its viral etiology, it appears unreasonable to use the term "etiology unknown." Finally, if it is established that a specific agent is responsible for initiating the infection, it is hardly necessary to use the adjective "primary." While the name was only intended as an interim heading for a group of non-bacterial pneumonias in the armed forces, prevalent at the time, it has reached general acceptance and through usage has become relatively clear. For the purpose of this report, the term "primary atypical pneumonia" will be used to signify the type of viral pneumonia which has been prevalent in recent years.

Historical.—Historically the disease is probably not new, as Dingle and Finland[3] in a survey of the literature found the typical clinical picture described in Germany in 1861, in France in 1872, and in Boston in 1884. During the thirties the disease received some recognition in reports by Allen,[4] Reimann,[5] Smiley,[6] and others, at which time it was variously termed acute pneumonitis, atypical pneumonia, virus pneumonia, and so on. By 1942 information and observations on non-bacterial pneumonias had sufficiently jelled for Dingle and Finland[3] to distinguish the disease from the then known viral and rickettsial infections causing pneumonia. However, the greatest single factor in differentiating the disease from the usual run of bacterial pneumonias was its failure to respond to sulfonamide and later to penicillin therapy.

The great majority of reports on the disease to date have been in adolescents and young adults in camps and schools. Reports of the disease in childhood have been very scarce. Wolman,[7] in 1942, in a review of the childhood pneumonias, notes that the pediatrist may see the occasional case of primary atypical pneumonia. Adams[8] has reported two epidemics of virus pneumonia in infants in Minneapolis. Greer,[9,10] in 1947 at a meeting of this section, and the following year at the Texas State Meeting, presented two series of 39 and 66 cases respectively and called attention to the increasing prevalence of the disease in children. No statistics are available showing the actual incidence of the disease in civilian populations at the present time, either in childhood or adult life. A hint as to the universal proportions of its occurrence may be

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*Read in Section on Pediatrics, Southern Medical Association, Forty-Fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

*From Pediatric Department and Roentgenology Department, Springer Clinic, Tulsa, Oklahoma, and Pediatric Department, St. John's Hospital, Tulsa, Oklahoma.

obtained by the fact that under very well controlled observations in the armed forces during World War II it was estimated that the incidence was 10 per annum per thousand,[1] or, in an army of 5,000,000 men, 50,000 cases per year, and the disease exceeded the occurrence of bacterial pneumonias in the ratio of 10 to 1.

Definition.—Since the various aspects of the disease have been thoroughly described in the literature, it seems necessary only to summarize the salient features.

Primary atypical pneumonia may be defined as an acute inflammation of the lungs, characterized by infiltration, but usually without consolidation. The onset is slow and insidious and the symptoms at the start may be those of an upper respiratory infection. Cough is a prominent symptom and constitutional symptoms are fever, headache, chills, and malaise, with often nausea and vomiting, and diarrhea in infants. The roentgenographic findings are characteristic and almost invariably exceed the physical findings in the chest. The course is moderate to mild and usually of two to three weeks' duration without complications. The mortality is practically nil. During convalescence cold agglutinins and agglutinins to streptococcus MG appear in the blood in approximately 50 per cent of the cases.[1]

The disease must be differentiated from other acute inflammations of the lung, chiefly the bacterial pneumonias, and from the viral and rickettsial infection of the lungs, chiefly, chorionic lymphomeningitis, influenza A and B, psittacosis, and ornithosis, and the Australian and American types of Q fever.

In *Table 1* are shown the chief differential points of primary atypical pneumonia and bacterial pneumonia.

The rare acute viral and rickettsial infections may be differentiated by appropriate serological and laboratory procedures.

Chronic infections of the lungs, tuberculosis, coccidiomycosis, and histoplasmosis may be differentiated by follow-up studies and by appropriate bacteriological, serological and skin testing technic.

Object of the Report.—In the summer of 1949 it occurred to two of us that we were seeing a rather extensive series of primary atypical pneumonias in our sampling of the childhood population of Tulsa. This observation was the stimulus for the following study. It is noteworthy that in 1949 aureomycin therapy was just coming into extensive use and presented an opportunity for parallel observation with the former non-specific therapy and with penicillin and sulfonamide therapy.

Clinical Material.—The cases selected were from private practice in the pediatric department of a group clinic and from the pediatric department of a large general hospital over a period of one year, from January 1, 1949 to January 1, 1950.

In *Table 2* is shown the incidence of pneumonia in private pediatric practice over a one-year period. Pneumonia was diagnosed in 97 cases or approximately once in every 160 patient visits. Of these 97 cases, 92 were diagnosed primary atypical and 5 bacterial pneumonia, roughly a ratio of 20:1. Of these 92 cases, 57 were hospitalized and will be analyzed with the hospital cases.

In *Table 3* is shown the incidence of pneumonia in the pediatric department of a gen-

Chief Differential Characteristics of Primary Atypical and Bacterial Pneumonias

	Primary Atypical Pneumonia	Bacterial Pneumonia
Onset	Slow, gradual, insidious	Usually abrupt
Physical findings	Generally minimal, only rales; consolidation rare	Consolidation frequent
Roentgenographic findings	Area of involvement nonopaque, margins ill defined; usually more definite than physical findings	Consolidation frequent, larger areas involved and well defined, usually parallel physical findings
WBC	Normal to moderate elevation	Definitely elevated
Cold agglutinins	Positive in half of cases	Negative
Response to therapy	Penicillin and sulfonamides, negative. Aureomycin, chloromycetin and terramycin, usually good	Sulfonamide and antibiotics usually good, depending upon specific organism

TABLE 1

Incidence of Primary Atypical and Bacterial Pneumonia in Private Practice over a Period of One Year, January 1, 1949 to January 1, 1950

Number of patient visits	16,000
Number of cases of pneumonia	97
Ratio of pneumonia cases to patient visits	1:160
Kinds of pneumonia	
Primary atypical	Bacterial
92	5
Ratio 20:1	

TABLE 2

eral hospital for a period of one year. During this period there were 4,000 admissions and pneumonia was diagnosed 221 times, or in approximately 5 per cent of total admissions. The ratio of primary atypical pneumonia to bacterial pneumonia in hospital cases was approximately 6:1, a finding which is approaching the relative occurrence of the two diseases during World War II in the armed forces. The reason for the higher ratio of bacterial pneumonias in the hospital practice is not immediately evident. Some of the cases were service cases and it is possible that in these cases the bacterial pneumonias had a greater chance to develop due to delayed institution of sulfonamide or penicillin therapy.

EPIDEMIOLOGY

Seasonal Incidence.—Chart 1 shows the seasonal incidence of these cases. It is evident that the disease occurred throughout the year with a fair frequency, but the peak incidences came in summer and late fall. It is interesting that these findings coincide with the findings of Finland[11] on the occurrence of cold agglutinins over a four-year period at Boston City Hospital. Also there is some resemblance in the seasonal incidence to acute anterior poliomyelitis. It is interesting to note that in the past two years, the two diseases have occurred simultaneously in three patients. Whether or not this indicates a common method of spread in these two diseases raises an interesting question.

Sex and Age Distribution (Chart 2).—Fifty-six per cent of our cases occurred in males. This slightly higher incidence of the disease in males has been noted by Greer and others. In this group the highest incidence was at the age of two years with a slightly lower incidence through 14 years of age.

Also in this chart is shown the age incidence in 92 cases in private practice. It is evident that this age distribution does not show any great preponderance of the disease in infants and very young children. Thus it appears that the disease in this age group is more severe and requires hospitalization more frequently. This is in keeping with the observation of Adams that the disease in new born premature and full term infants is severe with a mortality up to 30 per cent. It has been observed by Reimann and others that the disease is more severe in elderly people. Consequently the disease would seem to be most severe in the extremes of life. In this series the one fatal case occurred at the age of eight months.

Contagious Nature of the Disease.—In 16 instances of the 92 cases in private practice there were two or more cases of the disease in

Incidence of Primary Atypical and Bacterial Pneumonia in Pediatric Department of a General Hospital, January 1, 1949 to January 1, 1950

Number of hospital admissions	4,000
Number of cases of pneumonia	221
Percentage of hospital admissions due to pneumonia, approximately 5 per cent	

Kinds of Pneumonia	
Primary atypical	Bacterial
191	30
Ratio 6:1	

TABLE 3

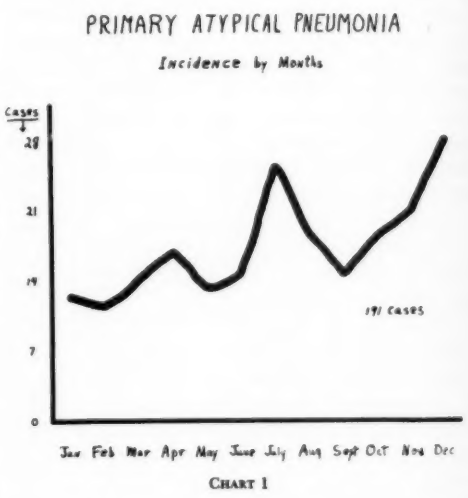


CHART 1

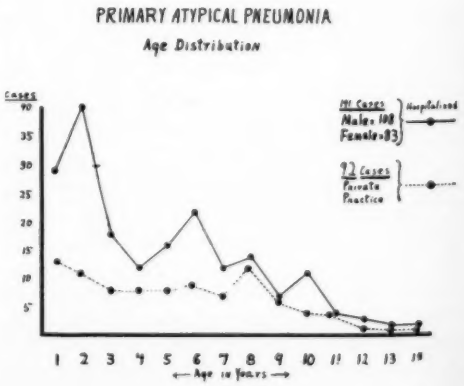


CHART 2

the same family either siblings, a sibling, or siblings and a parent. In one instance three members of a family were affected, two siblings and a parent.

Very little observation on lasting immunity is possible at this time. One case reported in this series in 1949 was seen again in 1951 with the disease.

CLINICAL FEATURES

History.—The onset of the disease in most cases was slow and insidious and often extended over a period of one to two weeks before being presented as a medical case, being usually preceded by what appeared to be an upper respiratory infection.

In *Table 4* are shown the presenting symptoms in order of their incidence. Cough was present in 100 per cent of the cases and usually was a distressing symptom. It was usually non-productive and hemoptysis was seen in only three cases. Striking is the number of children with gastrointestinal symptoms, vomiting and diarrhea, in contrast to the symptoms in adults. Dyspnea and cyanosis also seem to occur more frequently in this series than is usually reported in adults.

Temperature Curve.—The peak temperatures are shown in *Chart 3,* with the greatest number of cases showing a peak temperature of 101 to 102°. In a moderate number of cases the fever was slight, from normal to 100°, but over one-half of the group showed a temperature range of 102 to 105°.

Physical Findings.—In general, the physical findings were minimal, with occasionally a few crepitant râles heard at some stage of the disease, but seldom was actual pulmonary consolidation demonstrable. A preceding nasopharyngitis was a common occurrence.

Radiographic Findings.—The x-ray findings in these cases consisted principally of a fairly well localized area of increased density, situated in any given lung segment, but usually in the dependent or lowermost portions of the lungs. These areas of increased density were different from lobar pneumonia, in that they were seldom of great size and did not present the opacity of lobar consolidation. The margins were ill defined and tended to blend into the lung substance. Usually the increased density was unilateral, as evidenced in this first picture (*Fig. 1* J. W., left lung involvement). In some of the cases, however, both lungs were involved, well illustrated in this second picture (*Fig. 2* C.B., bilateral involvement).

A few cases were localized in the hilar regions, some bilaterally, but most striking when unilateral, as evidenced in this next picture (*Fig. 3* D.D., showing right hilar involvement). In the cases in which there was bilateral involvement the findings strongly resembled the films of influenzal pneumonia, which were common findings in the epidemic during the first World War.

It was strikingly evident to all of us that the films showing involvement only of the upper lobes were practically indistinguishable from primary acid-fast infections of childhood, and this type of involvement is well illustrated in the next picture (*Fig. 4* J.N.,) showing right

Presenting Symptoms in 191 Cases of Primary Atypical Pneumonia, 1949

Symptoms	*Incidence*
Cough	191
Fever	191
Malaise	183
Vomiting	51
Dyspnea	35
Anorexia	27
Wheezing	19
Sore throat	14
Diarrhea	14
Headache	10
Chest pain	10
Cyanosis	9
Chills	9
Abdominal pain	7
Earache	6
Hemoptysis	3
Convulsions	4
Conjunctivitis	2

TABLE 4

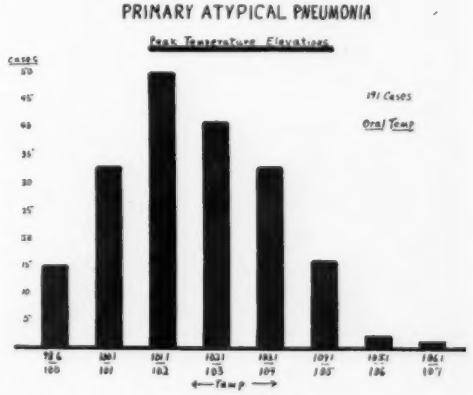


CHART 3

upper lobe involvement. Serial films were necessary in differentiating these cases.

In *Chart 4* is shown the distribution of pneumonic involvement through the various lung segments. It should be noted that our routine radiographic examinations were standard posterior anterior projections, lateral projections being obtained in very few cases. For this reason the accurate lobar distribution was not definable.

It is evident that all sectors of the lung were involved but that the highest incidence

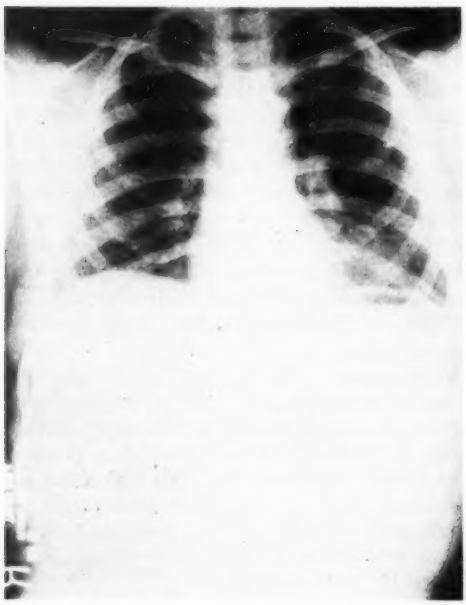


FIG. 1

Ill-defined increase in density in lower left lung.

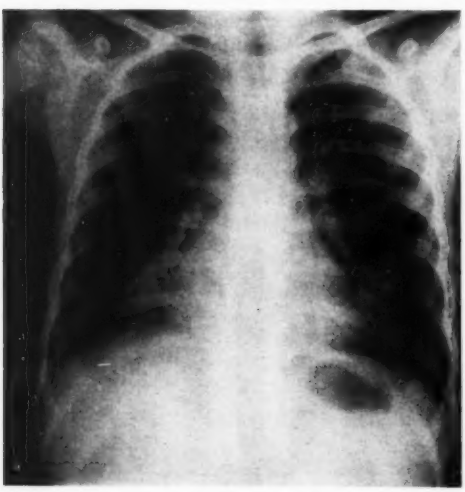


FIG. 2

Strand-like increase in density in both lower lung segments.

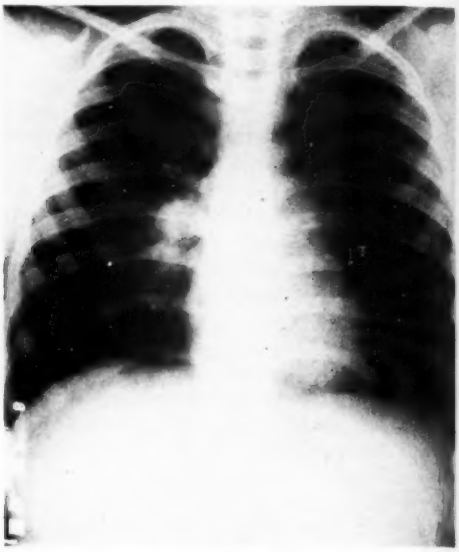


FIG. 3

Sharply localized pneumonic process in right hilar region.

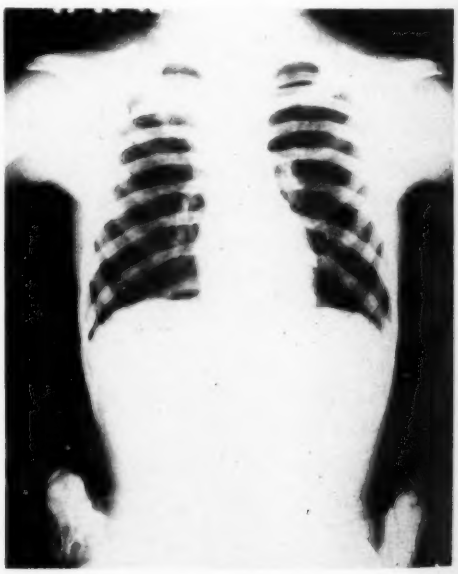


FIG. 4

Veil-like increase in density in right infraclavicular region differentiated from tuberculosis by serial studies.

was in the lower lung segments, namely, 67 instances of right lower lung involvement, and 41 of left lower lung involvement.

Laboratory Findings.—Chart 5 presents the distribution of white blood counts in this series, with the greatest number of cases showing counts between 6000 and 9000; 84 per cent of the cases were from 3000 to 12,000. However, a leukocytosis of 12,000 to 21,000 was occasionally seen. The slight incidence of leukocytosis may be explained on a basis of secondary infection or the extreme lability of the hematopoietic system in childhood.

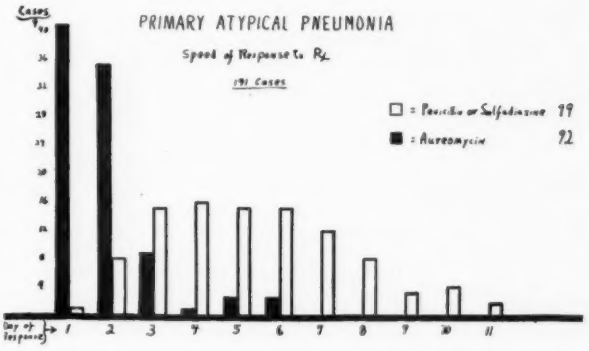

PRIMARY ATYPICAL PNEUMONIA
Speed of Response to Rx
191 Cases
□ = Penicillin or Sulfadiazine 99
■ = Aureomycin 92
Cases
Day of Response
1 2 3 4 5 6 7 8 9 10 11

CHART 6

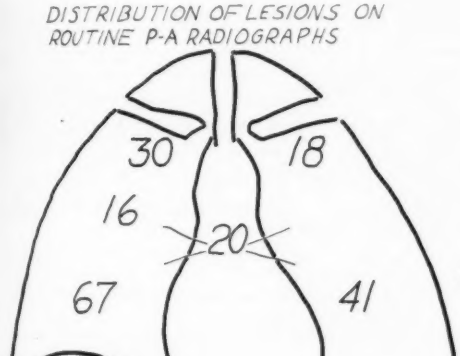


CHART 4

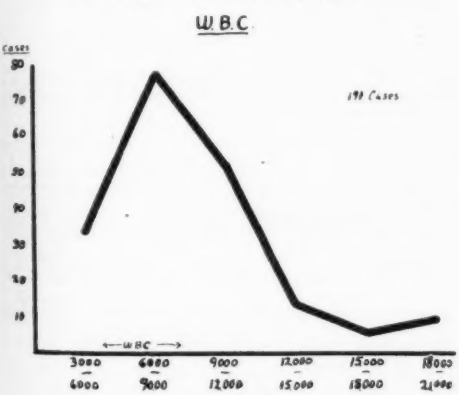


CHART 5

Table 5 shows the distribution of neutrophil counts by age groups. There were 114 patients who were five years old and under. In this group 95 cases, or 83 per cent, had a slight to high elevation of their neutrophil count for their age group. If it can be agreed that 60 to 70 is normal neutrophil count for the child over five years of age, then 52, or 67 per cent of those over five years exhibited an elevation of their neutrophil count.

Bacteriological Studies.—Cultures of the throat and sputum showed the usual variety of organisms which may be found in a cross section of normal individuals. Blood cultures were too few to be of value in this study, but all taken were negative.

Therapy.—In *Chart 6* is shown the relative speed of response to different forms of therapy. Ninety-nine cases were treated with penicillin or sulfadiazine. Ninety-two cases received aureomycin therapy only. The usual dose of aureomycin was 25 mg./Kg. but often much smaller doses were given. Eighty-five out of

Neutrophil Levels by Age Groups, 1949

Neutrophil Counts	0-5 Years		Over 5 Years	
0 - 10				
11 - 20	2			
21 - 30	4			
31 - 40	13			
41 - 50	22	83 per cent above normal	2	67 per cent above normal
51 - 60	23		7	
61 - 70	18		16	
71 - 80	25		26	
81 - 90	7		24	
91 - 100				
Cases	114		77	
Total Cases	191			

TABLE 5

92 cases (92 per cent) showed a striking clinical response to aureomycin therapy within 72 hours. The response to penicillin or sulfadiazine was, in general, consistent with the normal course of the disease without therapy, the disease being self-limited.

SPECIFIC EXAMPLES OF RESPONSE TO AUREOMYCIN THERAPY AND OTHER INTERESTING FEATURES OF THE DISEASE

In *Chart 7* is shown the case of a girl nine years of age. She was seen on the third day of her illness with signs of an upper respiratory infection, chiefly a red throat. She was given a daily injection of procaine penicillin with no apparent improvement in her fever, and apparently without any halt in the progress of her disease. On the seventh day, tubular breathing was heard at the left base posteriorly and an occasional fine crepitant râle. On admission to the hospital her white blood count was 5,800 and there was a diffuse density over the greater portion of the left lower lung segment. The cold agglutinins were positive only in a 1:6 dilution at this time. Since this patient had been seen a few months previously with a positive blood culture for Brucella, some consideration was given to the possibility of a pneumonia complicating brucellosis. The agglutination for Brucella was positive 1:640. Aureomycin therapy was instituted on the basis of 25 mg./Kg. body weight and the temperature curve fell to normal during a 48-hour period and remained normal thereafter. On the ninth day following the institution of aureomycin therapy the x-ray showed almost complete clearing, and two days later the titer of the cold agglutinins rose to 1:128. Her blood culture remained negative for Brucella. Thus this case was one of primary atypical pneumonia clearly differentiated from bacterial pneumonia, and showing a prompt and effective response to aureomycin therapy.

In *Chart 8* are shown the findings in a two-year-old patient. As was often the case in younger children, the white blood count tended to be higher. This showed the failure of response to penicillin therapy and prompt response to aureomycin therapy. The cold agglutinins were 1:256 on two determinations. The x-ray showed complete clearing in seven days.

In *Chart 9* are shown the findings in primary atypical pneumonia in a girl of eight years. The initial white blood count was 3800 and initial roentgenogram showed a fine infiltration involving the left upper lung segment with also changes in the left lower and right lower segments. There was no improvement with penicillin for six days. Twenty-four hours after the institution of aureomycin therapy the temperature fell to normal and remained normal. In seven days there was a marked clearing in the x-ray findings and on the twelfth day of the illness the cold agglutinins were positive 1:1024.

In *Chart 10* is shown another prompt response to aureomycin therapy in a 9-year old patient. The initial white blood count was 7000 and there had been no improvement with penicillin for an 8-day period. Cold agglutinins on the seventh day of the disease were positive 1:64. Following aureomycin there was a decided fall in the temperature over a 36-hour period.

The case represented by *Chart 11* did not occur in the series presented above, but was seen in July of this year and is shown for a specific purpose, namely to demonstrate a technique in the handling of acute upper respiratory infections.

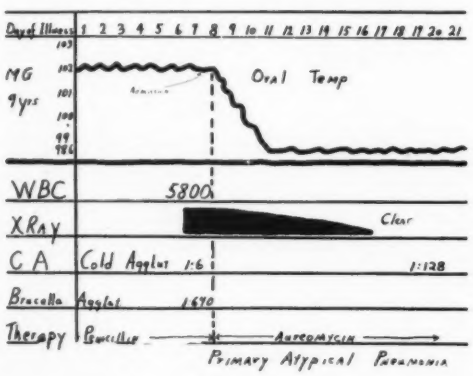


CHART 7

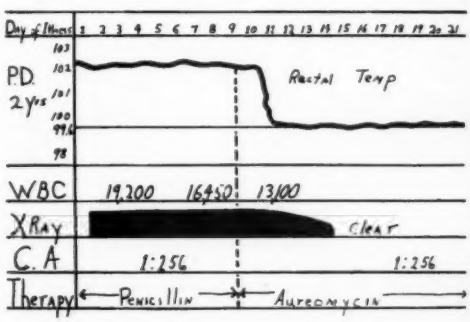
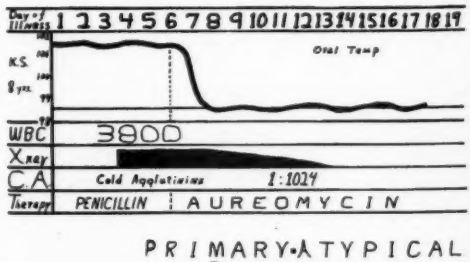


CHART 8

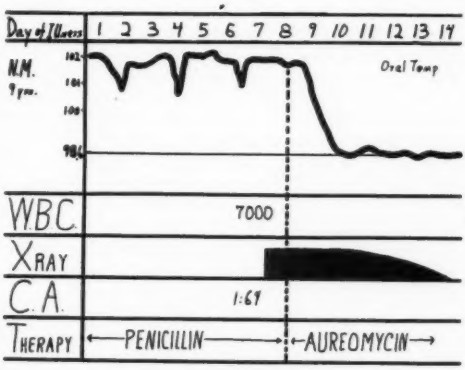


PRIMARY-ATYPICAL PNEUMONIA

CHART 9

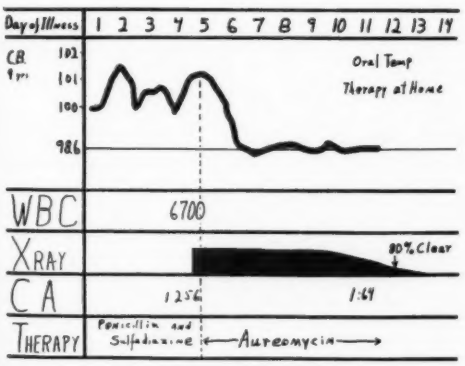
The patient, a boy nine years of age, was seen in the home on the second day of his illness with a temperature of 101.5°. After a careful physical examination the only positive finding was a red throat. He was given an intramuscular injection of procaine penicillin to be followed orally by a mixture of penicillin and sulfonamide for three days. The parents were told that if the temperature remained elevated after three days, additional therapy would be indicated. Three days later he was seen with a continued elevation of temperature and he was coughing. The physical examination at this time showed a few crepitant râles posteriorly. The white blood count was 6,700 and the x-ray of the chest showed findings consistent with primary atypical pneumonia. Cold agglutinins were positive 1:256. The response to aureomycin was prompt and x-ray healing was 80 per cent complete in one week's time.

This method of handling acute inflammations of the throat gives the patient the advantage of the stronger bactericidal effects of penicillin or the sulfonamides in the prevention of the various sequelae of these infections, such as otitis media, sinusitis, and bacterial pneumonias, and has been shown to lower the incidence of rheumatic fever.



PRIMARY ATYPICAL PNEUMONIA

CHART 10



PRIMARY ATYPICAL PNEUMONIA

CHART 11

A mixture of these therapeutic agents with the newer more bacteriostatic antibiotics, such as aureomycin, chloramphenicol, and terramycin, would probably be less effective, at least for the suppression of bacterial invasions because of the recently observed antibiotic antagonism.

SUMMARY

(1) Some of the epidemiological features and the important clinical, roentgenographic and laboratory findings in a series of primary atypical pneumonias in childhood have been reviewed.

(2) During a one-year survey there were 92 cases in a given private practice and 191 cases admitted to the pediatric department of a general hospital. The ratio of these cases to bacterial pneumonias was 20:1 and 6:1 respectively, as compared to a 10:1 ratio observed in the armed forces during World War II.

(3) The disease is mildly contagious as evidenced by the simultaneous occurrence of two or more cases in the same family in 16 instances of a series of 92 cases.

(4) The seasonal incidence shows the disease is present throughout the year but with a summer and late fall peak identical with the occurrence of cold agglutinins shown by Finland over a four-year period.

(5) The age distribution showed a gradually decreasing incidence in the older child, but the preponderance in age two and under, shown in hospital admissions, was not evident in routine private practice, indicating that the disease is more severe in this age group and more frequently requires hospitalization. There was a slight preponderance of males affected.

(6) Presenting symptoms of the disease were reviewed with cough present in 100 per cent of the cases. There was a greater occurrence of gastrointestinal symptoms, vomiting and diarrhea, in the childhood cases, and a

higher incidence of cyanosis and dyspnea than is usually reported in adults.

(7) Typical radiographic findings in the chest have been shown with the segmental distribution of these infiltrations recorded.

(8) The white blood counts in 191 hospital cases showed the greatest number, 79 cases, to be from 6000 to 9000. Thirty-two cases had white blood counts between 3,000 and 6,000, and 51 cases fell into the 9,000 to 12,000 group. Thus, 85 per cent of the white counts fell between 3,000 and 12,000. There was usually a relative increase in the neutrophil percentage in the differential counts.

(9) Of the 191 hospital cases, 99 received penicillin or sulfadiazine therapy only, and 92 cases received aureomycin. Following the institution of aureomycin therapy, 42 cases showed a prompt fall of temperature with regression of symptoms in 24 hours, an additional 34 cases in 48 hours, and 8 more in 72 hours, making a total of approximately 90 per cent with a specific response in 72 hours. The results of penicillin or sulfadiazine therapy were slow and scattered over a ten-day period, not inconsistent with the natural regression of a self-limited disease.

CONCLUSIONS

Thus, for the period of observation and for the segment of population observed, primary atypical pneumonia is a common disease of childhood. Its incidence greatly exceeds the incidence of bacterial pneumonia, probably due to the extensive use in medical practice of the sulfonamides and penicillin at the onset of acute infections. A similar frequency of the disease in the armed forces during World War II indicates that its extensive occurrence is not sectional, but is national and probably world wide. The clinical course was, in general, mild to moderate in children, but more severe in the younger child and in infants. The response to specific therapy in the form of one of the newer antibiotics, aureomycin, was prompt and effective.

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DISCUSSION *(Abstract)*

Dr. Allan Bloxsom, Houston, Tex.—The only thing I can add in my limited experience, is that chloramphenicol seems to work better for me than aureomycin, but this observation might not hold true for a large number of cases.

Dr. Edward M. Wier, Fort Worth, Tex.—In the past few years, pediatricians generally have talked of seeing more and more "virus pneumonia" among their patients. Dr. Russell has served us well by tabulating the incidence of the disease as seen in a private practice. At the same time he has pointed out the decided reduction in bacterial pneumonia even to the point of relative rarity. This needs to be emphasized since a mis-diagnosis is still too frequent. Or the illness may be called a bronchitis, an influenza, or a "chest cold." Inasmuch as primary atypical pneumonia does respond to specific treatment, it is important to make an early diagnosis.

It helps to be "atypical pneumonia conscious" in order to diagnose it. The alerting symptom is the harassing cough. Sometimes it almost approaches the paroxysmal character of whooping cough. The cough is made worse by activity or by getting too hot or too cold. It is usually this symptom that brings the child to the doctor. The chest may be clear to percussion and ausculation, although a few râles may be detected on deep inspiration or at the end of a severe coughing attack. Even so the child's appearance is suggestive. He is not critically ill but appears tired and apathetic. His appetite is poor and he is losing weight. It is of some interest that the clearing of the chest under x-ray can be anticipated by the return of appetite with a gain in weight.

The x-ray shadow is a soft one, but is dense enough that the office fluoroscope has proved invaluable for confirming a suspected case. Further, the fluoroscope offers a quick and inexpensive method for following the progress of the disease.

Chloramphenicol, in my experience, has proved just as valuable as aureomycin, the fever responding rapidly in a matter of 48 to 72 hours. The cough has not responded so rapidly, however, and generally the x-ray shadow caused by the pneumonia has not disappeared before ten days at the earliest.

Frequent migration of the pneumonia process from lobe to lobe has been a notorious feature of this disease. It would appear that aureomycin prevents this complication.

REGRESSION OF CERVICAL CARCINOMA *IN SITU* FOLLOWING AUREOMYCIN*

A FURTHER REPORT

By J. Ernest Ayre, M.D.
Miami, Florida

Epidermoid cancer in the human cervix is a unique form of malignant disease since it arises from a known tissue focus, the squamo-columnar junction. Carcinoma *in situ* is believed to be the pre-invasive stage of this disease, and it constitutes a cytologic stage of malignancy.

Prior to the introduction of cytologic staining, carcinoma *in situ* was a pathological curiosity; Novak[1] called it a rare disease. Today routine cervical smears on well women in industry reveal 1 per cent, while gynecologic clinic patients, complaining of pelvic inflammatory disease or menorrhagia, show 3 per cent carcinoma *in situ*.

Is there some relationship between inflammation and *in situ* cancer? Recent data has established that: The *in situ* lesion develops at the squamo-columnar junction as a pre-invasive stage of cancer; the cervix appears normal or shows an inflammatory red os; and average age incidence is 37 (compared with 47 invasive group).

Course.—It may remain static or be slowly progressive, often 5-7 years before clinical cancer appears.

Serial cell behavior studies have revealed non-regression up to 6 years. Does it regress in pregnancy? Biopsies by Hellman and others[2] say yes. Most say this is rare if true. We have observed 9 cases to persist, none to regress after pregnancy. No evidence of progression to invasive cancer was seen during pregnancy. In our studies, the course has been followed by cell morphology, biopsies being withheld. Biopsy may remove the lesion or induce sloughing. The malignant potentialities of *in situ* lesions are recognized by most, and ultimate invasion has followed in most observed cases reported.[3]

With the conviction that cervix cancer developed in a chronic inflammatory bed, we started 4 years ago to study effects of antibiotics, chemotherapy and hormones upon cervical cells. Such agents as sulfanilamide, sulfathiazole, penicillin, streptomycin, terramycin and aureomycin[4] were placed in the vagina of patients with carcinoma *in situ*. Various hormones, estrogen, progesterone, testosterone, cortisone, ACTH were administered in the search for an agent which might knock out the embryo neoplasm.

The cervix is a unique test organ, and cell scrapings from the squamo-columnar junction provide a delicate mirror of response in carcinoma *in situ* cells. Smears or scrapings may be taken week after week without harm to the patients. The surface cell biopsy[5] gives rich concentrations of anaplastic cells from discrete *in situ* lesions.

Some lesions were static for 5 years. Some progressed to invasion in 2-3 years, recognizable by cell scraping in advance of any dangerous or clinical change.

No regression was observed after the sulfas, or after penicillin, or streptomycin, until aureomycin was evaluated. We first observed the aureomycin phenomenon over two years ago, and although an early report was made in Buffalo in October 1950, publication was delayed until more evidence was available.[6]

Method.—Aureomycin suppositories were inserted *per vaginam* each evening at bedtime (250 mg. aureomycin HCl).

In 8 out of 19 cases apparent regression followed aureomycin, with three recurrences within 6 months after cessation of treatment.

Eleven cases were from the Royal Victoria Hospital, Montreal.

Six cases were from Jackson Memorial Hospital, Miami.

Detailed case reports will be presented on one responsive and on one unresponsive case.

Case 1 is the most outstanding example for the following reasons:

(1) Cells were continually observed to be present in repeated cell scrapings on this

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*Read in Section on Gynecology, Southern Medical Association, Forty-Fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

*These studies were inaugurated while the author was Director of the Cytology Research Laboratories at McGill University, Montreal, Canada.

*From the Dade County Cancer Institute and the Jackson Memorial Hospital, Miami, Florida.

*The author wishes to express sincere appreciation to Dr. W. Burton Ayre for assistance in the conduct of this project, and to Dr. B. C. Hopman, Research Associate, Dade County Cancer Institute, for assistance in cytologic interpretations on patients followed in Dade County.

*This work was supported by grants from the Public Health Foundation for Cancer and Blood Pressure Research, Inc., Stamford, Connecticut, and from Lederle Laboratories Division, American Cyanamid Company, Pearl River, New York.

patient over a period of 2½ years prior to the initiation of aureomycin treatment.

(2) During this time, it was demonstrated that no regression of the lesion followed the successive administration of the following hormonal and chemotherapeutic agents: estrogen in large doses, progesterone, testosterone, sulfanilamide and sulfathiazole in suppository form, penicillin and streptomycin.

Yet following 3 weeks therapy with aureomycin vaginal suppositories, there was a complete disappearance of all carcinoma *in situ* cells in cell scrapings.

Before going on with this case history, I should like to discuss the need for biopsy. I agree with those who say, for adequate diagnosis of carcinoma, biopsy is essential. We agree with this wholeheartedly and recommend it in all our diagnostic practice. Every case of positive cell diagnosis should be confirmed by adequate tissue search preceding

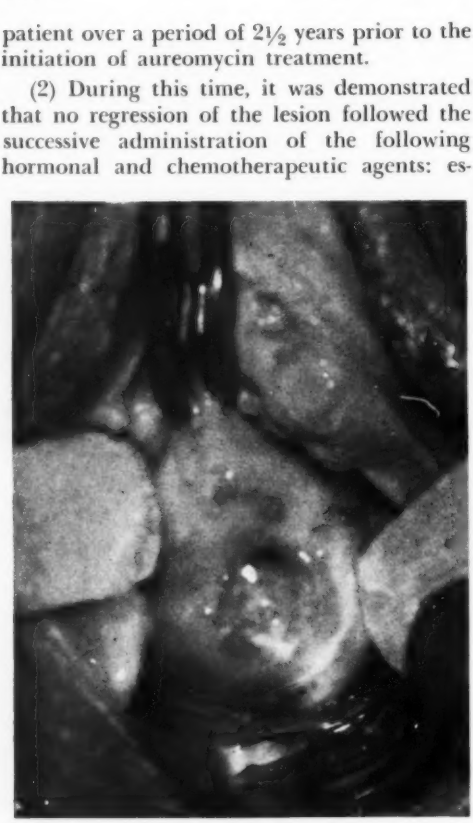

FIG. 1, CASE 1

Clinical appearance of cervix in March, 1948. A red inflammatory patch on posterior lip, a common finding, aroused no suspicion of abnormal growth.

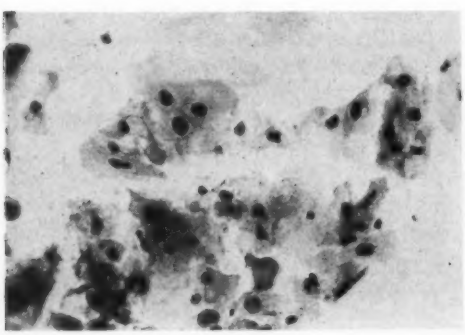

FIG. 1-A

Anaplastic Cells of Grade II-III Type.
The surface cell biopsy from a normal looking cervix revealed large numbers of anaplastic cells whose nuclei exhibit increased chromatin concentrations, anisonucleosis and megalonucleosis. Several single biopsy bites failed to reveal the anaplastic growth since there was no target lesion, but serial sections from a ring biopsy of the squamo-columnar junctional area revealed the neoplasm illustrated in *Figure 1-B*. Diagnostic case to illustrate comparative tissue and cell findings in carcinoma *in situ*.

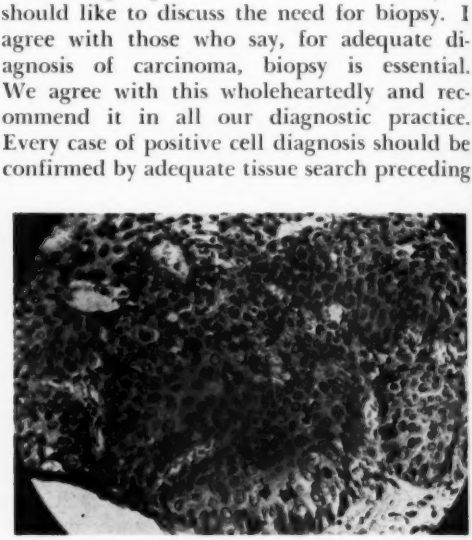

FIG. 1-B

Anaplastic Lesion of Carcinoma *In Situ* Type.
Histologic findings resulting from serial sections of surgical biopsy from normal looking cervix in case in which positive cell findings of Grade II-III resulted from the surface cell biopsy *(Fig. 1-A)*. The tissue shows well marked basal hyperplasia, anaplasia and a number of mitotic figures extending up to near the surface. The increased chromatin content of the nuclei and anisocytosis are evident. Observe the same type of cell towards the surface of the lesion, as illustrated in the cell smear *(Fig. 1-A)*. Diagnostic case to illustrate comparative tissue and cell findings in carcinoma *in situ*.

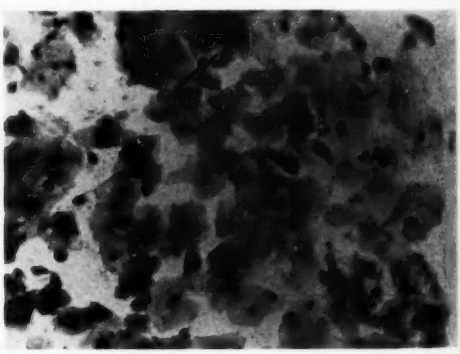

FIG. 2, CASE 1

Cervical cells on March 18, 1948. The cell scraping reveals clusters of early anaplastic precancer cells. Note large hyperchromatic nuclei in cells of superficial and intermediate origin (Grade IIB cells).

therapy. But in these special selected cases undergoing investigation, biopsy is preferably avoided since adequate biopsies in this stage of growth will often remove the lesion or a part of it, will induce sloughing of tissue elements, and stimulate a healing response in residual tissues. Indeed, in one of the 19 cases the lesion was eliminated from the regressive group because the ring biopsy, which confirmed the cell diagnosis, probably removed the entire lesion. Indeed, we believe this to be true. Although aureomycin treatment followed, we cannot claim regression due to aureomycin, even though for a year subsequently all cell scrapings and all clinical findings have pointed to a total absence of residual malignant disease.

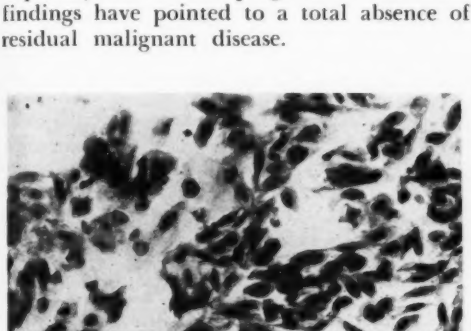

FIG. 3, CASE 1

Cervical cells on August 18, 1949, showing concentrated aggregation of highly anaplastic cells of superficial, middle and deep origin. Observe the relatively large size of the hyperchromatic nuclei in relation to the cytoplasm. Some degree of cytologic progression is apparent from the findings shown in March, 1948. (Classed as Grade IIIA cells). Cell findings correspond with those found in carcinoma *in situ*.

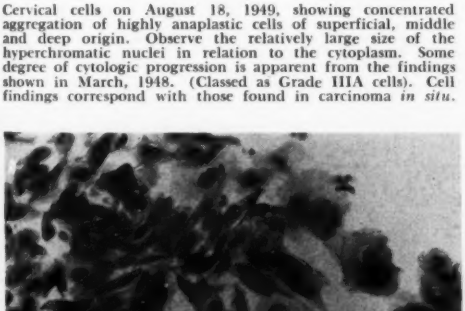

FIG. 4, CASE 1

Cervical cells on May 19, 1950. Rich concentration of anaplastic cells reflects a similar stage of growth to that shown in August, 1949. (Classed as Grade III cells.) Patient at this time was receiving testosterone.

It has been reported that the group at Washington University, Saint Louis, feel that biopsy may accelerate invasion in carcinoma *in situ*. So there are arguments pro and con regarding the use of surgical biopsies in behavior studies of this lesion.

Case 1 (Responsive).—Mrs. F., age 34, was first seen at the beginning of 1948 at the Royal Victoria Hospital Clinic, complaining of sterility and menorrhagia. The cervix showed a red os, common in benign cervicitis. She had had a neisserian infection some years before. The cytologic report at this time read: "This patient has cells consistent with the diagnosis of carcinoma *in situ*." Ring biopsy was at

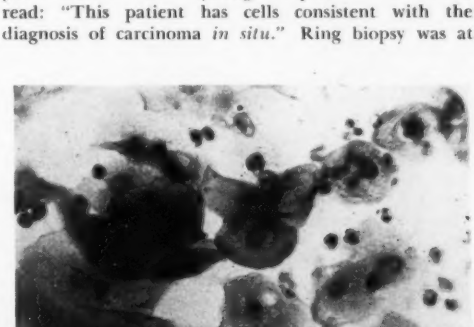

FIG. 5, CASE 1

Cervical cells on June 29, 1950. The cell scraping reveals cells of a benign though hyperactive inflammatory appearance. The nuclei frequently appear deflated and shrunken. Their staining character is ill defined. (Classed as Grade 1A.) This cell scraping was secured during the period when the patient was complaining of pruritus and the vaginal and cervical tissues revealed an inflamed tissue response which promptly disappeared after discontinuation of aureomycin therapy.

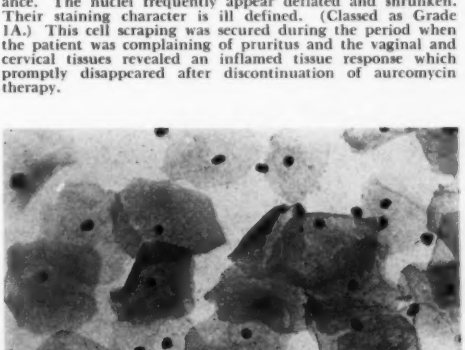

FIG. 6, CASE 1

Cervical cells July 20, 1950. The cervical cell scraping at this time revealed cells of normal morphologic character. A similar benign picture was demonstrable in a series of 79 cell scrapings throughout a 15-month follow-up after all treatment was discontinued (July 11). (Cells classed as Grade 0 are of normal morphologic character.)

FIG. 7, CASE 1

The clinical appearance of the cervix after cessation of aureomycin therapy (July, 1950). The small red patch formerly visible on the posterior lip of the cervix has been replaced by normal epithelium.

first advised, but the patient desired to temporize because of her obligation to her children, and it was decided to observe her course closely by serial cytologic study. Meanwhile, a trial of medical therapy was instituted. Eighty-nine cervical cell scrapings were secured in 1948, all of which showed positive (Grade II) cells. One hundred twenty-eight tests were taken in 1949, and the cell picture revealed a tendency to slow progression. A trial of penicillin suppositories (100,000 U.) was made for 12 days in June 1949. Pruritus developed, but no essential change in the anaplastic cells was noted. Over a period of 13 months this patient was given stilbestrol (mg. 150-400 weekly) and thiamine (mg. 150 weekly) without any evidence of regression. During the course of estrogenic therapy, it has been observed that in this case and in others showing anaplastic cells, increasing numbers of the anaplastic cells crowd the cell picture, suggesting that the hormone accelerates epithelial growth of the abnormal cells but does not possess the power of causing these cells to differentiate. Progesterone (lutocylin® mg. 50-75 weekly) was given in combination with the estrogen for 3 months in 1949 without evidence of change in the anaplastic cells. Meanwhile, the cervix had shown no clinical change. The patient was placed on testosterone and mg. 75-100 weekly was

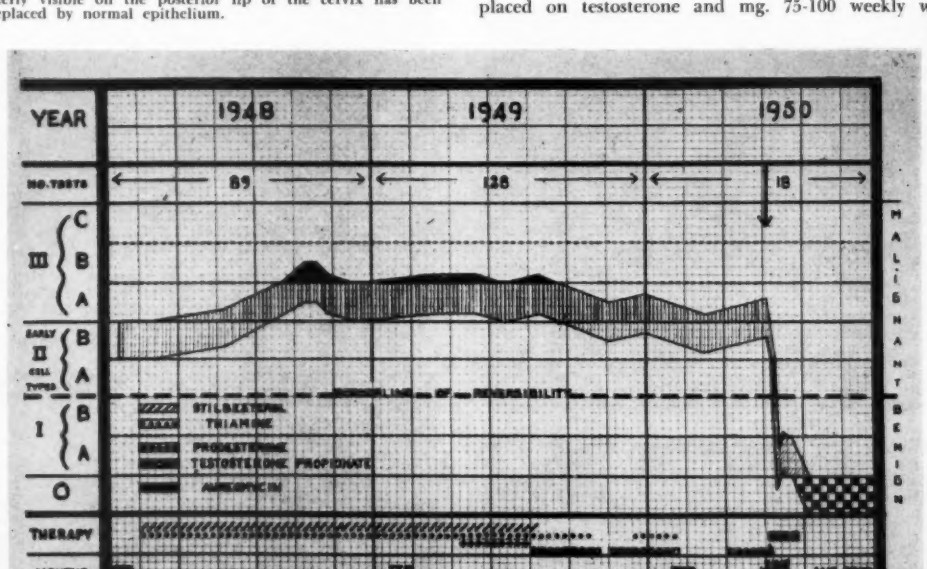

FIG. 8, CASE 1

Graph illustrating serial cervical cell behavior and cell response studies during a 2½-year interval. Observe that during 1948, 89 separate cell scrapings revealed cells of Grade II-III continuously present. During 1949, 128 separate cell scrapings continued to show a similar cell behavior pattern. During this 2-year period various hormonal agents were administered in efforts to produce differentiation of the anaplastic cells. These efforts were unsuccessful. Observe that during the latter part of 1949 and during the first five months of 1950 the patient was treated intermittently during a 9-month period with methyl testosterone and testosterone propionate. Somewhat fewer anaplastic cells were found in the cell scrapings during this time, but the essential character of the cell was unaltered. Observe that the testosterone was discontinued on June 8, at which time aureomycin suppositories were administered daily *per vaginam*. Note the abrupt change in the character of cells found in cell scrapings. After a 10-14-day period of treatment with aureomycin, the anaplastic cells disappeared. Benign inflammatory cells were found during a 14-day period of "tissue-response," to be followed by a prompt fading away of inflammatory cell features after cessation of aureomycin therapy. Cells of normal morphologic character have been consistently found since this time. In a series of 79 separate cell scrapings secured throughout a 15-month period, no further anaplastic cells have been observed.

given continuously over an approximate period of 6 months, a month was missed, then again for 2 months. Menstruation continued during this period somewhat erratically. Meanwhile, there were fewer anaplastic and cancer cells, but the character of the cell remained unchanged. The testosterone was stopped abruptly June 8, with the securing of aureomycin suppositories, which we had not previously evaluated. The aureomycin was started June 8, one being inserted *per vaginam* each evening. Meanwhile, tests were continued every 2 or 4 days. The result was the disappearance of anaplastic cells during the next 14 days. The complete disappearance of anaplastic cells and cells of cancer type from the smears was particularly striking because we had been doing serial cell studies week by week over a 2½-year period, during which time positive cells were continuously present. Since aureomycin therapy, a series of 79 cell scrapings has been taken over a 15-month interval. No further positive cells have been found in any of the multiple tests. Following the disappearance of positive cells and with continued aureomycin therapy, pruritus developed. An irritative tissue response noted in the vaginal tissues was reflected in recognizable cellular changes resembling the type of cell picture commonly found in benign inflammation. The suppositories were stopped during the menstrual period and started again after menstruation. The tissue response continued and became more intense despite the attempt to allay it with antihistaminics. The suppositories were discontinued after 23 had been used over a period of 33 days, a total of 5.75 grams. During the 10-day period following cessation, there were diminishing inflammatory cell features noted, but these subsequently disappeared. The cell picture has been essentially normal in all of the multiple cell tests during a period of 15 months. The new growth has apparently regressed completely and disappeared. Whether it is permanent or will recur remains to be seen. Clinically, the tiny reddened area about the os has disappeared and healing appears complete, the cervix now having the appearance of a perfectly normal, nulliparous cervix.

Nineteen months after therapy a ring biopsy and serial sections was reported as chronic cervicitis thus confirming the negative cytology.

Case 2 (Unresponsive).—Mrs. B., age 28, came to the Royal Victoria Hospital Gynecological Clinic on May 2, 1950 following a recent abortion. She had previously been admitted to the hospital March 29, 1950 with threatened abortion, which became complete April 3. May 2 she showed suspicious cervical cells. The cervix at this time revealed the presence of what appeared to be an inflammatory erosion, and in view of the anaplastic cell findings it was believed that she was harboring a carcinoma *in situ*. This patient was selected for a trial of therapy using ACTH and this hormone was administered to her in the hospital between May 11 and May 24, and the cell scrapings were secured repeatedly and results tabulated. The report of these inconclusive though provocative studies will be made elsewhere in a publication dealing with the effect of ACTH upon carcinoma *in situ*. On June 28 treatment with aureomycin suppositories was initiated and was continued to July 5. Then from July 20 to August 17 the patient used cortone® suppositories 10 mg. daily, 27 suppositories being used. This was followed by aureomycin therapy again from August 18 to October 20; 38 suppositories of 250 mg. being used. During this period there was no evidence of regressive change in the anaplastic cervical cells. Clinically, however, the evident inflammatory erosion became considerably smaller and less vascular so that bleeding following the cervical cell scraping diminished and finally disappeared. While the number of anaplastic cervical cells diminished in the cell smears, the character of the cell did not show evidence of favorable change. The cell type in this case was continuously at a stage of Grade IIIA, that is corresponding with pre-invasive cancer or carcinoma *in situ*. A punch biopsy on July 20 was reported as showing carcinoma *in situ*. Aureomycin therapy was persisted in for a longer than the usual period in this case in the hope of securing a successful combination, and during October and November the aureomycin therapy was supplemented by the addition of testosterone propionate and methyltestosterone (perandren® 25 mg. once a week and metandren® linguets 5 mg. three times a day). It was evident in November and December that the lesion was unresponsive to therapy, and in consultation with Dr. Simpson at the Royal Victoria Hospital in early December, operative therapy was discussed. Clinical examination revealed an innocent looking cervix with a small soft erosion. (The decision was left up to the patient whether she would come into the hospital for ring biopsy and therapy immediately or carry on with therapy until after Christmas. The patient made the latter decision and accordingly aureomycin therapy was continued on this patient until January 2, 1951 and a total of 106 suppositories were used.) From the beginning to the end of therapy in this patient there was no evidence of favorable or regressive change in the anaplastic cells, and the ring biopsy secured January 12, 1951 revealed a lesion of "probable" early invasive carcinoma type. Invasion of the glands was widespread and in some areas there was fairly good evidence of early breakthrough into the stromatous tissues. Treatment with radium was instituted and in the opinion of the clinicians the cure is almost certainly assured in this early stage of growth.

I should like to mention the tissue finding on a patient who was followed for a full period of 5 years, during which time she showed a static condition and no evidence of cell progression throughout. The ring biopsy and serial sections revealed a minimal lesion which has been diagnosed by one of our Miami pathologists as showing carcinoma *in situ*. This demonstrates the potential time interval during which carefully controlled cell behavior and cell response studies using the various antibiotics may be undertaken. On the other hand, to determine cell regression usually necessitates a delay of a matter of weeks in individual cases being tested for response.

DISCUSSION

(1) No claim is being advanced that aureomycin is a cure for cancer; none of the invasive lesions, even the early ones, responded by regression.

(2) There is a suggestion of common etiological factors between some *in situ* cancers and lymphogranuloma venereum.

(3) Has the regression come from an antivirus or anti-carcinogenic action? Workers at Lederle Laboratories have observed an anticarcinogenic effect of aureomycin on tissue cultures.

(4) Does evidence of regression in these cases indicate that these *in situ* lesions were not genuine cancer, but a disease which only simulates cancer?

(5) Or, is *in situ* cancer essentially an infectious or inflammatory process amenable or responsive in some cases to aureomycin, and possibly in others to other antibiotics not yet isolated? And will elimination of underlying inflammation bring about regression in other early cancerous lesions?

CONCLUSIONS

Carcinoma *in situ* appears to be a special stage of cancer which we believe to be related primarily to chronic inflammation or infection with or without a virus. The findings shed a ray of light upon the basic nature of the malignant process. Other research points to a multiplicity of causes of cancer. There may be a multiplicity of infectious agents associated. While less than half of the *in situ* lesions investigated have responded to aureomycin, (and in some cases regression was temporary) even so, this is remarkable. At a later date it may well be determined that lesions of this kind will respond to other antibiotic or chemotherapeutic agents still to be discovered. The fact that invasive cancer has not been shown to respond to aureomycin (and we have studied 6 cases of invasive cancer of the cervix with aureomycin) suggests that the invasive cancer cell is of a different stage, variety or virulence.

Findings suggest that *in situ* cancer is a neoplastic infectious process, which is yet not wholly autonomous. This does not mean that in future years, if untreated, it will not kill. (We have observed cases having a similar relationship to infection discovered too late, which have gone on to the usual termination in malignant disease.) But this offers a ray of hope that progress in this direction may ultimately prove successful in inducing regression in all carcinoma *in situ* lesions.

It appears further that some worthwhile research along this path may be pursued by the clinician and the cytologist, and knowledge of the malignant process augmented.

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DISCUSSION *(Abstract)*

Dr. Carey Hiett, Fort Worth, Tex.—Most of you can remember that when you were medical students you felt that all of the new drugs had already been discovered and most of the new operations had already been labeled with men's names. You perhaps felt that you were studying a stationary science in medicine. However, since you graduated from medical school, along have come insulin and the sulfonamides, penicillin, streptomycin and aureomycin. These are definitely new discoveries. Aureomycin, as the pediatricians tell us, has some bearing on growth, as some of the children on whom they have had to use a great deal of aureomycin have grown a little faster than the children who have not had aureomycin. The other day I heard on television a program announcing that the chicken feed that was being advertised was aureomycin enriched; so there is no question that aureomycin has something to do with the metabolism or growth of the cell.

Dr. Ayre's study with aureomycin might mean that cancer is very definitely akin to an inflammatory process, as we have been taught over a long period of time. Most of you can remember your gynecological and obstetrical professors speaking of keeping the cervix clean which might prevent a patient from having cancer. This might be akin to an inflammation, as Dr. Ayre has shown.

As I see this paper, there are two points of interest. First is that he has treated these cases without biopsy material and second is the question of experimenting with humans in this manner. First considering the biopsy, I feel that cytology is certainly a new field and those who have had the experience of examining slides from thousands of cases are qualified to say whether these cytological studies really are diagnostic of cancer present. I know that Dr. Ayre does not in-

tend to suggest that cases be treated clinically without biopsy, but I certainly feel that in the experimental field it is all right for a cytologist, who has had the experience that Dr. Ayre has had, to treat cases experimentally just from the cytological diagnosis.

As for treating cases or humans this way, I see no reason why we should not experiment with early cancer in this way. Wars have been waged to arrive at a formula for peace. These are in the nature of experiments where the human element is not considered at all.

In my own practice I have found that cytology is very helpful. First it tells something about the patient other than just whether she has cancer. It shows something about the glandular system. About four years ago I decided that it was necessary for me to know something more about cytology. I took special training in it and since then have been doing cytologic tests on every patient in my practice. I have not picked up as many cancers as Dr. Ayre quotes in his paper, but I have picked one and one-half per cent early cancer cases and these certainly are worth while.

No cases should be treated clinically on a cytological diagnosis. All cases should have a biopsy and have tissue confirmation from a pathologist. I should like to bring out a point concerning the taking of a circular biopsy that I have found in the past year or two that has helped considerably. First I use 0.5 per cent of procaine with three drops of epinephrine to the ounce, infiltrating the cervix completely around and injecting plenty of solution. I use from one to two ounces throughout the cervix. It is distended to where it is blanched out. Then with a fine plastic knife, I make a circular ring biopsy and remove the tissue intact. In this manner there is practically no bleeding. In some cases there has been absolutely no bleeding.

Dr. Karl John Karnaky, Houston, Tex.—In the not too distant future, I believe that some simple drug will be found that when taken either orally or by injection or both, will destroy cancer with as little harm to the patient as from penicillin. As we all know, this would be a great discovery.

We at Jefferson Davis Hospital are working on various chemicals hoping to find a drug that will destroy cancer without harm to the patient. At present we think one of the surface-acting agents might help. A report of our work will be made later. We once thought that we had a cure namely, large doses of stilbestrol in cancer of the cervix and adenocarcinoma of the endometrium, but this was shown not to be true. We are hoping that Dr. Ayre's efforts will be successful.

Dr. Ayre (closing).—Until the nature of cancer is learned, every new lead merits full exploration. The recognition of carcinoma *in situ* challenges research in human cancer. There is a remarkable opportunity to utilize cervical cytology to examine the "precancer cell" and the precancerous stage of cervical cancer, to analyze the "tissue soil" in which these cells develop, and to test cell response to antibiotics and chemotherapy.

The preference of the pathologist for tissue studies is reasonable in clinical practice, but true cellular research is possible only if the experienced cytologist has the facility to study the cells of precancerous lesions serially without surgical interference over considerable time intervals. The true dangers of biopsy have not been adequately stressed. True, if followed by immediate radiation or surgery, biopsy must be accepted as a necessary evil. Yet, how often it may spread malignant cells beyond the reach of radiation, only the passage of time will determine. To what extent does the biopsy break down body barriers, open blood and lymph channels to launch viable cancer cells into circulatory channels? The biopsy leaves raw gutters into which malignant epithelium grows. The biopsy adds distinct problems and may invalidate behavior study of "embryo" *in situ* cancers.

What happens in aureomycin-responsive cases? Nobody knows. A direct effect upon cancer cell metabolism? Elimination of underlying tissue infection? A change in cervical bacterial flora, knocking out one set of antagonists thus altering the bacterial balance favorably? We can only speculate. But something unusual has happened which demands further intensive investigation by experienced cytologists assisted by experts in chemotherapy and immunochemistry. With this new approach to the problem, a further step towards understanding of malignant processes may be attained.

SQUAMOUS CELL PAPILLOMA OF THE CERVIX UTERI*

By JOHN L. GOFORTH, M.D.
Dallas, Texas

Reference to the literature on the subject of polypoid lesions of the cervix uteri reveals the interesting disclosure that cervical polypi and papillomata are currently grouped together under the heading "cervical polyps," and are discussed rather summarily from the clinical and gynecologic viewpoint without particular regard to etiology or histogenesis. Pathologic treatment of this subject likewise has been scanty, a short broadly descriptive paragraph usually sufficing in text and reference books. From the etiologic point of view, it is noteworthy that several authors describe polypous epithelial hyperplasias as being possibly due to abnormal hormonal stimulation of the cervical mucosa during pregnancy.[1,2]

It appears that relatively little attention has been directed towards the life behavior of the several varieties of polypoid structures

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FIG. 1

Very low power view (150X) of entire benign squamous cell papilloma of cervix uteri. Note keratinized outerlayers of individual papillations, and well restrained basement membrane *(Case 2)*.

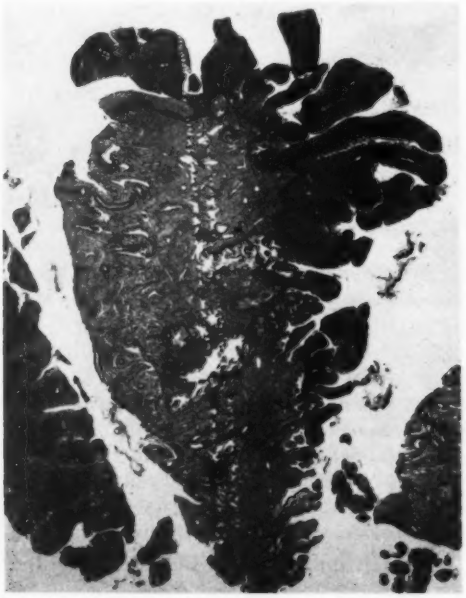

FIG. 2

Very low power view (150X) of a more active squamous cell papilloma of the cervix. Note mucus secreting cervical epithelium in papilloma area. Note epithelial bulges extending downward into submucosal tissues about which basement membrane remains intact *(Case 10)*.

which comprise this important group of cervical lesions, and an evaluation of their malignant transformation potentialities has

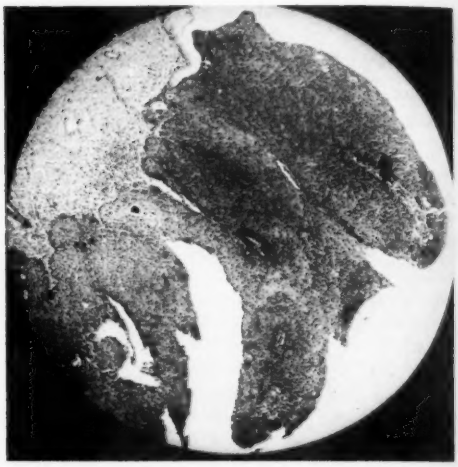

FIG. 3

Low power view (175X) of squamous cell papilloma of cervix showing very cellular papillations with scanty stromal tissue and intact basement membrane. Note mucus secreting epithelium below papillations *(Case 5)*.

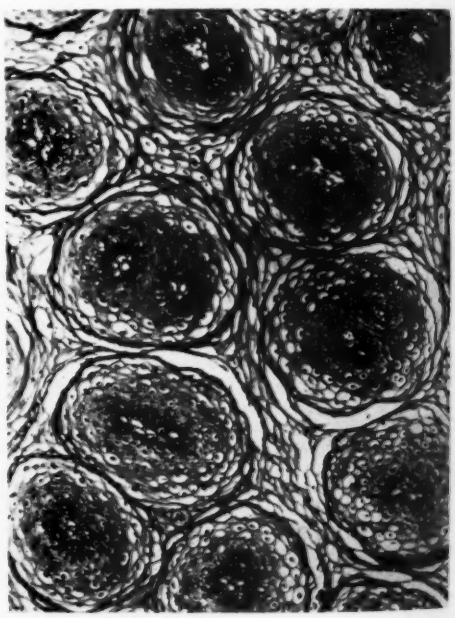

FIG. 4

Low power view (260X) of squamous epithelial cell papilloma of cervix uteri, showing papillations sectioned crossway *(Case 9)*.

not been attempted on any large scale follow-up basis.

Inasmuch as a pathologic classification of these lesions necessarily includes those of neoplastic as well as those of inflammatory and possibly endocrine origin, the term "papilloma" is employed in this study to designate a localized neoplastic surface epithelial proliferation, whereas the term "polyp" is used to refer to an irritative reactive or inflammatory localized hyperplasia. The elevated cervical and vaginal mucosal irregularities secondary to delivery tears and operative traumata are classified as "pseudo-papillomatous" tissue repair formations and are not considered in this study.

Accordingly, with this major division established, these cervical lesions may be conveniently sub-grouped as follows: (1) squamous cell papillomata; (2) gland cell papillary adenomata; (3) condylomatous polypi; (4) simple inflammatory polpi; and (5) polypous hyperplasias of pregnancy.

Because of their frequent occurrence in the menopausal and post-menopausal age groups, or so-called cancer age, the inflammatory polypi have been accorded undeserved importance in respect to their causal relationship to malignant disease of the cervix uteri. The complication of metaplastic change, considered to be a reactive and conversional phenomenon through which cells change into a lower order of specialization, occurs not infrequently in inflammatory polypi, and seems to have added to the confusion regarding this over-rated relationship. Actually, simple inflammatory polypi seldom undergo malignant change. The epithelial hyperplasias of possible hormonal origin, particularly those related to pregnancy, are not evaluated in this report.

The condylomatous formations, or so-called venereal warts, on and about the cervix uteri are classified as reactive verrucous hyperplasias of probable viral etiology, and apparently bear no causal relationship to neoplastic disease. They frequently occur as multiple lesions of varying sizes.

It appears that gland cell papillary adenomata of the cervix uteri are quite rare, and their malignant potentialities are not definitely known. In a review of some six thousand cervical biopsies, only two such lesions were encountered. Each was classified as a benign lesion. One might well speculate whether the "cauliflower" polypoid adenocarcinoma of the cervix uteri, constituting approximately 2-3 per cent of all varieties of malignant disease of the cervix, may not occasionally be preceded by a benign papillary adenomatous growth. The collecting of factual data concerning the incidence and behavior of cervical papillary adenomata is now under way in our department.

It is the purpose of this study to consider in some detail the salient features of squamous cell papilloma of the cervix uteri, and to appraise its probable behavior in relationship to malignant disease. This lesion occurs on the portio vaginalis and is defined as a localized pedunculated or sessile neoplastic papillomatous proliferation of the squamous epithelium. It is similar in several respects to epidermal and squamous cell papillomata in other locations. Grossly this lesion is readily visible through a speculum as a single small burr-like structure, somewhat resembling a wart with elongated papillations, protruding from the external os, and attached at or near the squamo-columnar junction usually by a broad base (*Fig. 2*). Occasionally the growth possesses a stalk, and rarely it is multiple. The lesion measures 3-7 mm. in diameter and varies from 2-4 mm. in height. It is relatively soft and consequently is palpable with difficulty. It is likely to be missed on pelvic examination without the aid of direct vision.

Histologically, the lesion is composed of squamous epithelium covered papillations of varying sizes *(Fig. 1)*. There is a tendency towards hyperkeratinization of the outer layers, and there is no hyperplasia of the middle or prickle cell layer, with associated acanthosis, as occurs in condyloma *(Fig. 3)*. The basement membrane is regular and very well restrained. The stalk or stromal tissue is scanty and usually is not infiltrated with inflammatory cells *(Fig. 4)*.

Cytologically, the exfoliated squamous epithelial cells resemble those of the normal cervix, and they exhibit the same cornification changes. The cells may be hyperkeratinized, and they may be seen in small irregular placques resembling cast-off papillation tips.

Twenty-one cases of squamous cell papilloma of the cervix uteri have been studied as cervical biopsies in the past four years. During this period approximately 6,000 cervical

biopsies were examined histologically. *Table 1* presents in summary the available clinical data regarding these cases.

Age Incidence.—Squamous cell papilloma of the cervix uteri appears to be a lesion of the younger age group. Thirteen or 61 per cent of the cases reported in this study occurred in patients under 30, and nine of these were observed in patients in the 18-21 age group. None was observed in patients past 42 years of age. In two cases the age unfortunately was not given.

Surgical pathology experience indicates that the majority of cervical biopsies are taken from patients in the late childbearing, menopausal and post-menopausal ages; relatively few biopsies come from younger patients, particularly unmarried ones in the second and third decades of life. Since for reasons more conventional than scientific it appears not to be a routine or customary procedure to inspect visually the cervix uteri on physically examining young females, including first pregnancy patients, it is obviously not possible to establish an accurate incidence for this lesion.

Symptoms.—There were no symptoms recorded in any of these cases which might be considered as being caused by the papillomatous growth. The lesion was found accidentally on physical examination and was completely excised with an excisional biopsy in the majority of instances.

Pregnancy.—Relatively little information is available upon which fully to evaluate the influence of pregnancy on squamous cell papilloma of the cervix. As a matter of fact, very little attention has been paid to the behavior of the squamous epithelium of the cervix during pregnancy; the majority of references to cervical changes in pregnancy cover mainly the glandular mucosal responses.[3] In Case 3 (N.T.) a biopsy taken at the time of delivery showed slight increase in the glycogen content of the cells in the prickle cell layer, or stratum malpighii. In Case 12 (D.S.) there had been pregnancies 8 and 10 years respectively before the cervical biopsy was removed, and the complaint of "watery vaginal discharge without odor of approximately 10 days duration" is not considered to be a specific one. This patient had not been told by the attending physician at delivery that a cervical abnormality of any kind existed; consequently, one cannot conclude that the atypical behavior of the squamous epithelium of the papilloma in this case is related to pregnancy. Although conclusions regarding the influence, if any, of pregnancy on squamous papilloma of the cervix are not warranted from the scanty data available, it is pointed out that this lesion may be first observed by the physician at the time of the first physical examination of a young patient in her first pregnancy. Familiarity with it should preclude unwarranted radical treatment in such an instance.

Case Number		Age	Symptoms	Lesion Discovered	Removal
1. 47–1935	O.S.	18	None, never pregnant	Routine physical examination	Excisional biopsy
2. 51–2407	E.M.F.	18	None, never pregnant	Double lesion	Excisional biopsy
3. 92104	N.T.	19	None, first pregnancy	At delivery time	Excisional biopsy
4. 47–782	L.G.	20	None, never pregnant	Routine physical examination	Excisional biopsy
5. 12800	C.Q.R.	20	None, never pregnant	Routine physical examination	Excisional biopsy
6. 24022	L.Y.	20	None, never pregnant	Routine physical examination	Excisional biopsy
7. 29139	A.H.	20	None, never pregnant	Routine physical examination	Excisional biopsy
8. 25234	J.S.	21	None, never pregnant	Routine physical examination	Excisional biopsy
9. 34170	J.C.A.	21	None, never pregnant	Routine physical examination	Excisional biopsy
10. 73656	M.A.T.	26	None, never pregnant	At operation	Hysterectomy (multiple fibroids)
11. 29772	J.D.B.	26	None	Routine physical examination	Excisional biopsy
12. 91835	D.S.	27	Slight watery vaginal discharge, two previous pregnancies	Special pelvic examination	Wide excisional biopsy
13. 14227	W.E.S.	29	None	Routine physical examination	Excisional biopsy
14. 32561	F.L.S.	34	None	Routine physical examination	Excisional biopsy
15. 23577	D.R.	35	None	Routine physical examination	Excisional biopsy
16. 34281	W.A.S.	35	None	Routine physical examination	Excisional biopsy
17. 24275	M.L.K.	40	None	Routine physical examination	Excisional biopsy
18. 5349	C.R.O'B.	41	None	Routine physical examination	Excisional biopsy
19. 21033	C.C.F.	42	None	Routine physical examination	Excisional biopsy
20. 11943	J.B.H.	?	None	Routine physical examination	Excisional biopsy
21. 15341	M.M.	?	None	Routine physical examination	Excisional biopsy

TABLE 1

Behavior.—To date, and involving a four-year study, there have been no recurrences in the 19 cases which were classified as benign squamous papillomata on histologic analysis. The two cases, Cases 10 (M.A.T.) and 12 (C.D.S.), which exhibited atypical changes along the basement membrane *(Fig. 5)*, and which were placed in the incipient or preinvasive carcinoma category, likewise have not recurred following radical removal of the lesions. In Case 10 (M.A.T.) the uterus with cervix was removed because of leiomyomata, one of which was situated in the lower uterine segment, and in Case 12 (C.D.S.) a more radical local excision of the papilloma site was done some 10 days after histologic study of the original excisional biopsy revealed atypical epithelial behavior.

What becomes of these interesting lesions? This question may well be propounded since squamous cell papilloma of the cervix has not been observed in older patients. Is it possible that the undetected benign squamous epithelial papilloma of the cervix in the twenty-year-old girl transforms itself into a polypoid fungating squamous cell carcinoma of the cervix in the same patient some ten, fifteen or twenty years later?

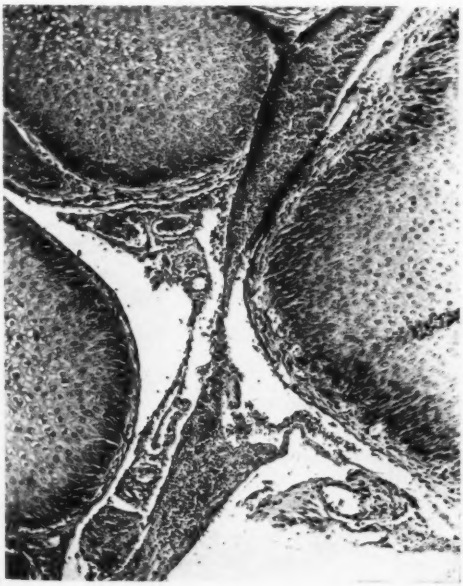

FIG. 5

Low power view (275X) of squamous cell papilloma of cervix showing increased cellular activity in cellular bulges which extend downward into submucosal tissue. This may represent pro-malignant activity *(Case 12)*.

It is admitted that much of the discussion in this paper is speculative, but it is hoped this presentation will provoke or stimulate further thought and observation regarding the incidence and behavior of this interesting and possibly very important papillomatous lesion of the cervix uteri in order that the questions raised can be answered.

SUMMARY AND CONCLUSIONS

(1) Twenty-one cases of squamous cell papilloma of the cervix uteri, a neoplastic lesion, are recorded.

(2) Squamous cell papilloma of the cervix appears to occur in young females, and bears no causal relationship to pregnancy. It is a relatively rare lesion, but may occur oftener than is now suspected.

(3) Two of the cases recorded in this report show probable early carcinomatous transformation changes.

(4) The question of the malignant transformation potentiality of squamous cell papilloma of the cervix uteri is raised and discussed.

(5) Further studies and observations are needed to evaluate properly the life behavior of squamous cell papilloma of the cervix uteri, a lesion which apparently has not been described heretofore as a specific entity.

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DISCUSSION *(Abstract)*

Dr. M. Pinson Neal, Columbia, Mo.—If the material upon which this presentation was based is truly a papilloma, that is, a neoplasm, it would be of interest to know if it might in some instances terminate as a carcinoma *in situ* or a true invasive carcinoma. If the lesion is not neoplastic it must then be interpreted as a reaction to some form of irritant, primarily as an inflammatory process with resultant healing by granulation tissue and secondarily epithelization over the processes. This I believe it to be, and if this be true it would be important to determine etiological factors and prevent or remedy these. As possible causative factors the use of the many contraceptive measures of many varieties and component elements and of substances that retard the vaginal discharge of menstrual flow as sold under several trade names are worth investigation. It would be of interest and possibly of

value if the reactions of the described lesions to the Schiller test were known on a large series.

Dr. Oscar B. Hunter, Jr., Washington, D. C.—I would like to ask Dr. Goforth if he has noted any correlation of this particular pathologic lesion, squamous papilloma of the cervix, with smegma bacilli, in women other than those of the Jewish race. The reason for my question is that we have noted this type of lesion in two particular patients in whom smegma bacilli were quite abundant, and further investigation revealed the organisms to be associated with squamous papillomas of the foreskin of the husbands of these particular women. It was our feeling from these two cases that a very definite correlation may possibly exist.

It has also been our impression that carcinoma of the cervix has been relatively uncommon in Jewish women. We have seen only on rare occasions this particular lesion in women of the Jewish race. For these reasons I should be interested in knowing whether Dr. Goforth has noted any correlation between these two particular problems.

Dr. Goforth (closing).—In reference to the comment by Dr. Neal I wish to point out that if these papillomatous lesions of the cervix were reactive formations, an associated chronic inflammatory cell infiltration, such as occurs in condyloma, would be an expected constant part of the histologic picture. Actually, inflammatory cells have not been observed in the majority of the papillomata reported in this study.

I have no specific data to offer in answer to the interesting question by Dr. Hunter relating to smegma bacilli. I am of the opinion, however, that squamous cell papillomata of the cervix uteri, which I believe to be neoplastic, often are confused with inflammatory proliferations of one type or another, and consequently are incorrectly diagnosed. The fates of neoplastic papillomatous growths on the one hand, and inflammatory papillary-like proliferations on the other, are quite different from my viewpoint.

PELVIC ABSCESS*

By C. Gordon Johnson, M.D.†
Conrad C. Collins, M.D.‡
and
Herman B. Webster, Jr., B.S.§
New Orleans, Louisiana

This paper concerns the management of patients having tubo-ovarian, or ovarian abscesses. It does not include simple uncomplicated cul de sac or broad ligament abscesses. The material for this study includes patients treated on the Tulane Gynecological service at Charity Hospital in New Orleans, during the years January, 1946 to January, 1951, inclusive. This study includes 93 cases.

Reasons for this study are as follows: First, the very apparent scarcity of reports of this nature in the literature. Secondly, the apparent abundance of such cases which we had believed should have been on the decrease, since the advent of sulfa drugs and antibiotics. Gillett,[15] in 1938, said that he believed that sulfa drugs are effective in the treatment of acute pelvic inflammatory disease without demonstrable adnexal masses. In 1938, Goff[1] said that his results with chemotherapy were disappointing and that about 50 per cent of patients with acute pelvic inflammatory disease would require surgery. In 1941, J. T. Williams[2] said that sulfa drugs were of little value once the inflammatory process in the adnexa had become established. H. E. Miller,[3] in 1944, said that chemotherapy was quite disappointing in infections above the internal cervical os. Tritsch, Saxe and Schneider,[4] in 1946, found results with sulfa drugs no better than in patients treated without them.

Lash,[5] in 1950, said that at the Cook County Hospital, acute pelvic inflammatory disease still reigns supreme as the most common gynecological surgical problem. He also said that although febrile reactions subside earlier with sulfa drugs and antibiotics, the inflammatory reaction does not. We agree with these authorities that sulfa drugs and antibiotics are of little value unless given early, certainly within the first five days of an acute condition. After tissue destruction or abscess formation, they are of little, if any, value. We do, however, feel that they are indicated and are of value in the immediate preoperative and postoperative period where surgery is necessary for tubo-ovarian abscess. The indiscriminate use of these drugs for pelvic infections is strongly condemned, particularly where the abscess can be described as chronic.

As one would expect, the patient index on the gynecology service at the New Orleans Charity Hospital is predominantly colored. These individuals are especially prone to treat themselves or to seek treatment long after it would be helpful in preventing serious sequelae of acute pelvic infections. Of the

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§Pre-Doctoral Fellow of the National Foundation for Infantile Paralysis, Inc.

93 cases treated, 79, or 85 per cent, were colored and 14, or 15 per cent, were white.

The age group, as shown in *Figure 1*, indicates as one would expect that these infections are found most prominently during the active sexual life. The greatest number, 19, occurred in the age group between 30 and 35. The remainder occurred with nearly equal percentages in the groups from 15 to 30 and from 35 to 45. The smallest number, of course, naturally fell in the group 45 years and over. W. T. Black,[6] in 1936, reported a series of 80 similar cases with an average age of 24 years.

The chief complaints given on admission to the hospital are shown in *Figure 2*. In 86, or 95 per cent of the cases, pain was the main symptom. This is not surprising, for the colored race, in which 85 per cent of the cases occurred, frequently ignores such an illness until pain becomes quite severe. The patients are then forced to obtain treatment other than home remedies.

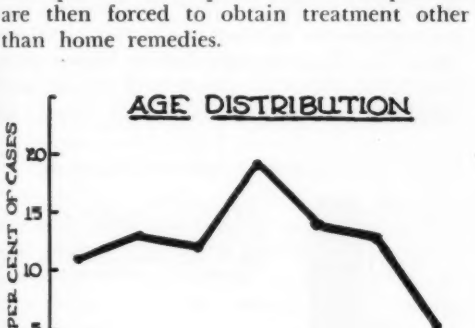

FIG. 1

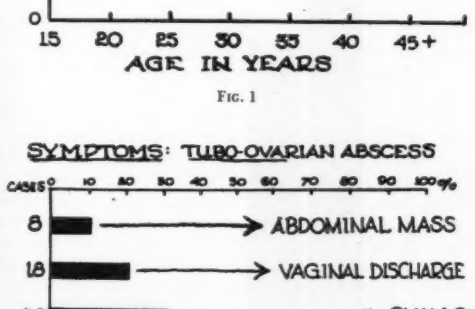

FIG. 2

Fever was present in 46, or 50 per cent.

Bleeding was the third most common complaint. It was recorded as the primary symptom by 31, or 33 per cent.

Chills were present on admission in 39, or 31 per cent, which shows the acute nature of the condition in one-third of the cases.

Vaginal discharge was present in 18, or 20 per cent. This incidence is even lower than Miller's[3] report of 38 per cent or Guerriero[7] and Arnell's report of less than one-third of 433 pregnant women with a non-bloody vaginal discharge admitting a discharge to be present.

The presence of an abdominal mass was noted in only eight cases, or 9 per cent and was thus given as the chief complaint on hospitalization.

In their report on pelvic inflammatory disease, Tritsch, Saxe and Schneider,[4] in 1946, found that pelvic pain and vaginal discharge were the most frequent complaints, which is what one would expect.

There have been several instances where the importance of promptness in seeking treatment of acute inflammatory disease has been mentioned in this paper. The duration of symptoms before admission to the hospital is shown in *Figure 3*. The largest number of patients, 23, waited from one to three weeks before seeking hospitalization. It is difficult to believe, but 20 patients waited from one to two months before coming to the hospital, and 13 patients waited for five months or more. One can thus readily understand why we continue to see, on our wards at Charity Hospital, these serious complications of acute pelvic inflammatory disease. In only 17 in-

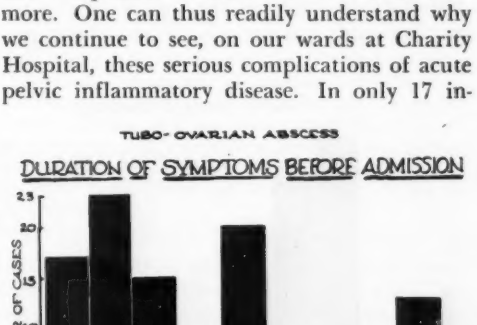

FIG. 3

stances did the patients seek hospitalization within the first seven days after the onset of symptoms; 15 patients waited two to three weeks and seven waited three to four weeks.

The fact that 50 per cent of these 93 patients received no special therapy before entering the hospital, plus the long period of time that elapsed between the onset of the disease and hospitalization, seems adequately to explain the extensive pelvic damage often seen on admission. Thirty-eight patients received sulfa drugs and 28 were treated with antibiotics prior to admission. In 12 instances, douches were described as the only treatment before admission and in three cases, diathermy alone had been utilized.

The total hospital stay as shown in *Figure 4* is self-explanatory. Thirty-three patients comprise the largest group, with a hospital stay of five to ten days. Twenty-nine patients remained ten to fifteen days and 21, fifteen to twenty days. From one to five days was the total hospital stay of 17 patients. Further analysis of data collected indicates, as one would expect, that the shortest hospital stay occurred in patients having either cul de sac puncture alone or followed by posterior colpotomy.

As has been previously said, we feel that sulfa drugs and antibiotics are indicated as a preoperative measure. Either one or both of these drugs were given to approximately 50 per cent of the patients as preoperative therapy. In 21, or about 23 per cent, it was also necessary to resort to the use of Wagenstein suction and intravenous fluids where peritonitis was unquestionably a complicating factor. In 49 cases, no treatment was given preoperatively, this apparently indicating that these abscesses were of the chronic type.

The diagnosis of pelvic abscess is usually not a difficult one. At times, however, it is most important to establish definitely the presence or absence of pus. Cul de sac puncture is a diagnostic procedure which we use quite frequently on our service at Charity Hospital. It is a most valuable procedure in determining the presence of pus or blood in the cul de sac. This diagnostic procedure was utilized in 32 instances in this series. In five patients, the puncture failed to reveal the presence of pus, but in 27 cases, pus was found on cul de sac aspiration.

The hospital stay prior to operation may be of some interest and is shown in *Figure 5*. In 51 cases, or better than 50 per cent, this consisted of from one to five days and in 33 cases, or about 35 per cent, the hospital stay prior to surgery was five to ten days. In three cases, the stay was from ten to fifteen days, two stayed fifteen to twenty, and in only four instances did the patients require twenty or

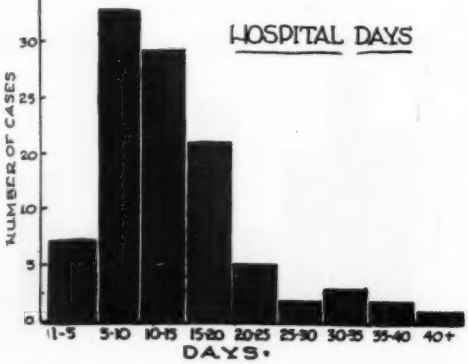

FIG. 4

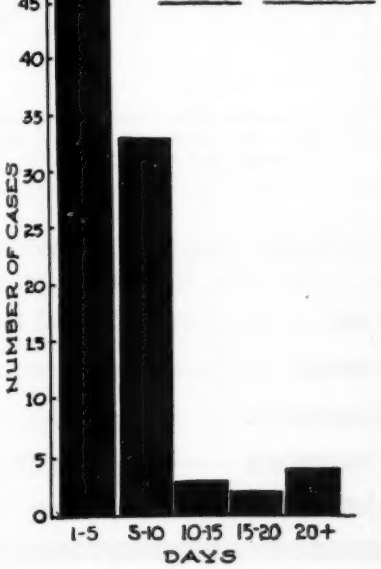

FIG. 5

more days before an operation could be performed.

The treatment of pelvic abscess is not one in which a definite pattern can be followed for all. It may be of some interest to review the various treatments advocated for acute pelvic inflammatory disease as well as for pelvic abscess.

The late C. Jeff Miller,[8] in 1927, in a paper entitled "The Rational Treatment of Tubal Disease," said:

"It is not an exaggeration to say that the paper which S. F. Simpson read before the American Gynecological Society in 1909, 'The Choice of Time for Operation of Pelvic Inflammation of Tubal Origin,' was epoch-making in the annals of gynecology. The mortality for this condition under the old plan of immediate operation had ranged as high as 20 per cent, but Simpson was able to report for the new principle of delayed operation a series of 456 cases with a death rate of 1 per cent, which was, for that time, an unparalleled record. His dicta, absolute recovery from the acute attack, a consistently normal temperature for at least three weeks, even after thorough bimanual examination, and the complete absorption of the inflammatory exudate surrounding the primary focus of infection, were first regarded as utopian and ultra-conservative, but their logic has gradually won them general acceptance with the result that the prognosis in tubal disease today is decidedly different from what it was a quarter of a century ago."

Dr. Miller further said that with the conservative treatment of acute pelvic inflammatory disease, possibly 15 per cent will achieve a permanent spontaneous cure. This was in 1927, long before the advent of sulfa drugs or antibiotics.

Dr. Miller also said that in possibly 10 per cent of the cases which he saw,

"The pathological changes were so extensive that operation was indicated as soon as the case had 'cooled.' Unfortunately, because of original neglect and unwise management, radical surgery must usually be done; bilateral salpingectomy was necessary in 243 of the 300 cases studied at Charity Hospital and unilateral or bilateral oophorectomy was necessary in 218. Between these two extremes, however, lie the great majority of cases, and it is here that the decision must be made on the individual merits of the case. In all instances the aim was to defer surgery as long as possible, and it is surprising how often cases which were apparently hopeless, achieve at least a clinical recovery spontaneously."

Dr. Miller,[9] in 1928, writing on "Salpingitis; The Case for Expectant Treatment," said:

"From these facts and from studies of the clinical findings in literally thousands of cases of tubal disease, certain indisputable conclusions emerge. Salpingitis, at least of the specific type, tends to recede spontaneously from the acute stage; that is, autosterilization tends to occur and the woman develops her own immunity and can protect herself against the bacterial invasion which has taken place. In the non-specific type, spontaneous regression is likewise the rule, though the organisms retained their activity for unknown periods of time. In the second place, spontaneous clinical recovery must be considered at least a possibility in every case of salpingitis, though naturally it is more frequent in the mild than in the extremely severe type. In the third place, involvement of the general peritoneal cavity is exceptional and death during an attack is equally unlikely. In more than a thousand cases of salpingitis, treated by purely expectant methods, Holtz secured 82 per cent of clinical and 12 per cent of functional cures, and had only 2 per cent of absolute failures. Since 1921, in the clinic of Arthur Curtis of Chicago, a plan has been to refrain entirely from operation for gonorrheal salpingitis on the principle I have already outlined, that recurrent attacks are fresh infections rather than fresh outbreaks of an original infection. Not only have the clinical cures been brilliant, but the number of functional cures have been surprisingly large and it may well be that another generation in medicine will see surgery in such cases entirely eliminated and expectant treatment the routine plan.

"It might be well briefly to outline the method by which these cases are handled. The cardinal principle is rest in bed, absolute rest not only for a few days but for many, indeed for many weeks until the temperature has been persistently normal for a minimum of two weeks in spite of repeated vaginal examinations. During the acute attack, pain is relieved by ice caps and local applications as indicated, with opiates used sparingly when necessary. The bowels are regulated by mild cathartics and gently given enemas; drastic cathartics have no place in the management of a pathologic condition which can be excited to fresh outburst merely by intestinal peristalsis. Fluids are forced by proctoclysis, by hypodermoclysis, even by infusion, and transfusion resorted to in extremely debilitated and toxic patients. Douches are not routine but if they add to the patient's comfort and are cautiously given, I do not believe them harmful. Surgery is limited to the opening of localized pus collections pointing in the cul de sac or above Poupart's ligament. There is nothing subtle, nothing complicated about this treatment, and I sometimes wonder if its extreme simplicity, its total lack of action, is not the reason why more gynecologists are not willing to follow it absolutely."

Dr. H. E. Miller[3] compared the results in a series of cases of acute pelvic inflammatory disease treated at Charity Hospital from the years of 1939 through 1942, with the group reported by C. Jeff Miller in 1927. He found that the overall mortality in a series of 6,184 cases reported in 1927 and 1928 by Dr. Jeff Miller was 2.5 per cent as compared with the mortality of less than 1 per cent in 3,072 treated at the same institution over a three-year period, 1939 to 1942, inclusive. He also

said that chemotherapy played only a minor part in the improved results and was not curative in any case, but was effective as an adjunct form of treatment in properly selected cases. A. F. Lash,[5] in 1950, reporting from the Cook County Hospital, said that where the acute stage of pelvic inflammatory disease has not been retarded by sulfa drugs or antibiotics, and rest, and there is present a clinical picture of progressive peritonitis or pelvic abscess, surgery is indicated as a life-saving procedure. Abscesses do not respond to any drug. Posterior colpotomy may serve the purpose by drainage of pelvic, tubo-ovarian or broad ligament abscesses.

Arthur Curtis[13] wrote:

"Cul de sac drainage should not be the invariable procedure of choice in the treatment of tubo-ovarian abscesses; only pointing abscess should be drained."

Clayton T. Beecham,[12] in 1948, in writing on "The Intelligent Use of Surgery in Pelvic Inflammatory Disease," said that cul de sac abscess does not occur in acute upper genital tract gonorrhea. He also said that ovarian abscesses are best drained extraperitoneally by an abdominal incision. He advises extraperitoneal drainage through an incision parallel to Poupart's ligament of broad ligament abscesses. We heartily agree with this providing the abscess does not point to the vagina and cannot be drained by this route.

The teachings of Dr. Jeff Miller have had a tremendous influence on our present plan of treatment, not only of acute inflammatory disease but of pelvic abscesses as well. His conservatism has been ever present in our handling of these cases. The various surgical procedures used in treating these abscesses are shown in *Figure 6*. Primary surgery was done in 40 cases, or 43 per cent. By primary surgery we mean that these patients had recovered from the acute inflammation on admission to the hospital and had not had extraperitoneal or vaginal drainage of the abscess or abscesses. Indications for surgery were either continued pain, menstrual disorders, or presence of a painful pelvic mass. Twenty, or 50 per cent of these cases, had received sulfa drugs or antibiotics before admission to the hospital. This again indicates that these drugs were apparently ineffective, having been given too long after the onset of the acute tubal inflammation.

The surgical procedures consisted of total abdominal hysterectomy and salpingo-oophorectomy in 34 cases and salpingo-oophorectomy alone in six. We have found through considerable experience that one can seldom get by with conservative surgery in treating pus tubes. Conservative surgery usually means additional surgery. One must perform hysterectomy in the presence of extensive bilateral tubal or tubo-ovarian disease. All hysterectomies were total. When operation is necessary for inflammatory lesions of the tubes or ovaries and pregnancy has been rendered impossible by the extent of the inflammatory process, hysterectomy should be performed. The only reason for not performing a hysterectomy is the possibility of future child-bearing. The cervix as well as the fundus uteri should be removed when hysterectomy is performed. (Postoperative convalescence is smoother than when the cervix is not removed.)

In 25 cases, 25.8 per cent, posterior colpotomy was the procedure of choice. Follow-up of these cases reveals the fact that we had two full term deliveries, one two years later, and the second three years later. Three cases returned for additional surgery, one 30 days later for a total hysterectomy and salpingo-oophorectomy and a second returned two months later for a similar operation. In one instance, it was necessary for the patient to return for a second colpotomy. One patient had been seen on a general surgical division and her abscess had been drained through the rectum, a procedure which we do not advocate. She was later

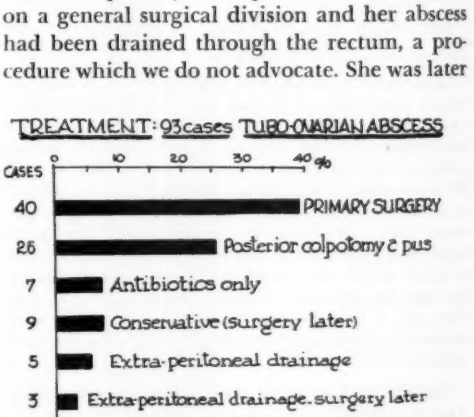

FIG. 6

transferred to gynecology. Here it was necessary to do a posterior colpotomy and this was repeated twice over a period of three months. Check-up in the clinic one year after her original admission revealed her pelvis to be apparently normal with no complaints from the patient. Another patient returned six months after colpotomy for extraperitoneal drainage which was preceded 72 hours before by extraperitoneal packing for walling off an ovarian abscess. She returned again two years later for a total hysterectomy and bilateral salpingo-oophorectomy. In nine instances follow-up in the out-patient department revealed the presence of adnexal masses. These patients were advised to return to the hospital for surgery if symptoms were present. Follow-up of the remaining nine cases in which colpotomy had been done failed to reveal any residual adnexal pathology and these patients had no symptoms at this time.

In seven cases, surgery was preceded by conservative treatment. This consisted of bed rest with sulfa drugs or antibiotics. The surgery done in these seven cases was total abdominal hysterectomy and salpingo-oophorectomy in six instances and unilateral salpingo-oophorectomy alone in one case.

In seven cases, or 7.5 per cent of the total number, a medical regimen was the only treatment needed.

Extraperitoneal drainage was done in five cases. In four of these, total abdominal hysterectomy and salpingo-oophorectomy was done at a later date.

In two patients, extraperitoneal packing to wall off the ovarian abscess was done and was followed by drainage 72 hours later. One patient returned two years later for abdominal hysterectory and bilateral salpingo-oophorectomy.

From 33 patients, cultures were taken of the pus which was collected either at the time of colpotomy or laparotomy. In nine instances, positive growths were obtained and of these, four were E. coli, two were beta hemolytic streptococci, two alpha hemolytic streptococci, and one was staphylococcus-albus. This small number of positive growths seems to agree with other reports. We feel that the etiological agent in the great majority of these 93 cases was the gonococcus. It has long been known that this organism disappears very early from the exudate in the fallopian tube. This was shown by Curtis[10] in 1921, when in an exhaustive study he was able to find the gonococcus present in tubal disease in only 19 of 192 specimens investigated, or 9.89 per cent. Hundley, Diehl and Daggot,[11] in 1950, reported on cultures in 80 women having tubal disease. They found positive gonorrheal infections of the cervix and urethra in 41.25 per cent but the fallopian tubes showed only 6.25 per cent positive cultures. There were nine tubo-ovarian abscesses in this series and all were bacteriologically negative. They concluded that gonorrheal infection of the tubes is a short-lived one and repeated attacks of salpingitis are due to re-infections from the lower generative tract.

It has been our practice on the Tulane unit at Charity Hospital for many years to close abdominal incisions without drainage when pus was spilled from a pyosalpinx or tubo-ovarian abscess. This practice was introduced long before sulfa or antibiotics and at a time when most surgeons were draining the abdomen for other pyogenic infections. We have not seen any ill results.

The mortality for this group of 93 cases was 0.93 per cent, there being one death. This patient, a 28-year-old colored woman, was moribund on admission. Cul de sac puncture and colpotomy both revealed pus. Death took place within 24 hours after admission. The coroner's report was acute, dessiminated peritonitis. We assumed that this followed a ruptured tubo-ovarian or ovarian abscess. Rupture of such an abscess is fortunately rare, for the mortality in such cases is extemely high. In our extensive experience we have seen few patients recover from this complication. We recently had such a situation occur and through colpotomy, followed later by abdominal drainage, were able successfully to combat the rupture. This patient actually ruptured while in the hospital for treatment of an abdominal wall abscess and known bilateral tubal disease. C. T. Beecham[12] says that rupture of ovarian abscess is rare, but serious. He advises transperitoneal drainage with removal of the ovary months later.

H. E. Miller,[3] in reporting 3,072 cases of pelvic inflammatory disease treated at the New Orleans Charity Hospital during the

years 1939 to 1942, found eight instances of rupture of tubo-ovarian abscesses, six being fatal. Dr. Miller,[14] reporting from the same institution in 1944 on gynecological deaths, found 38 instances of tubo-ovarian or other pelvic abscesses. In 14, rupture was demonstrated at autopsy, and it seemed to have occurred, on the basis of sound clinical evidence, in seven others. Some of these patients were moribund on admission, and apparently their ruptures had occurred some time before. We believe that the extremely small number of ruptures in our series has been due to active treatment and close observation of these patients on the ward. We also feel that prompt surgery has tended to prevent this complication. Once the diagnosis of ruptured tubo-ovarian abscess has been made, immediate colpotomy or laporotomy is indicated. The exudate should be removed by suction and the ruptured ovarian abscess should be removed if possible.

Upper right abdominal pain is often present in the presence of tubo-ovarian abscess. This is the result of extension to the region of the diaphragm. For this reason, pelvic examination is always necessary in women with unexplained upper right abdominal pain of an acute type.

The main change in management since 1946, which we believe is responsible for the lowered mortality, has been total hysterectomy and salpingectomy instead of salpingectomy alone, drainage or removal of abscess when it is apparent that spontaneous resolution will not take place, immediate evacuation of all large abscesses and active immediate surgical attack when suspicion of spontaneous rupture exists. We owe much to Wagenstein suction, sulfa drugs, and antibiotics, but still think that the major factors responsible for lowered mortality have been an earlier and more active surgical approach.

SUMMARY

(1) We have presented 93 patients with tubo-ovarian or ovarian abscesses. The treatment of these cases has been given in detail.

(2) There were 79 colored, or 85 per cent of the total; 14, or 15 per cent, were white.

(3) The majority of the cases fell in the age group between 20 and 35.

(4) The main symptoms complained of were pain, fever, and uterine bleeding.

(5) Failure to seek prompt hospital care was quite noticeable in the majority of cases and probably explains the large number of abscesses.

(6) Fifty per cent of these 93 patients received no special therapy prior to admission.

(7) Utilization of cul de sac puncture in 32 instances indicates its importance and value as a diagnostic aid.

(8) Treatment advocated by the late C. Jeff Miller in 1927 is outlined, stressing conservatism.

(9) Primary surgery, consisting of total hysterectomy and salpingo-oophorectomy was done in 43 per cent of the cases.

(10) Posterior colpotomy was used in 25 per cent of the cases.

(11) Only seven cases responded satisfactorily to a medical regimen.

(12) Extraperitoneal drainage was done in seven cases, in two it was preceded by extraperitoneal packing to wall off the abscess.

(13) Of 33 cultures, only nine were found to be positive.

(14) The mortality was 0.93 per cent, there being one non-surgical death.

(15) Frequency of rupture of tubo-ovarian abscess and therapy have been discussed.

CONCLUSIONS

We feel that sulfa drugs and antibiotics have not materially decreased the frequency of tubo-ovarian abscess. We do believe, however, that if used within the first five to seven days of the acute infection they would have considerable effect. We also feel that their use preoperatively and postoperatively has helped considerably to reduce our morbidity and mortality.

We believe that abscesses should be drained only when pointing, preferably by the vaginal route. Occasionally it is best to drain those fixed to the abdominal wall by the extraperitoneal approach. We doubt the advisability or the necessity of extraperitoneal packing for walling off an abscess prior to drainage, except in the extreme case where, because of the poor condition of the patient, other procedures are definitely contraindicated.

Our review of the cases has proved that conservatism followed by primary surgery with removal of the abscess is the procedure of choice in the majority of cases. Abdominal drainage after such surgery is never indicated, even for gross spillage of pus.

Finally, we believe that the lowered mortality found in the period surveyed was due to more active and earlier surgery.

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DISCUSSION *(Abstract)*

Dr. C. R. Bates, Dallas, Tex.—At Parkland Hospital, here in Dallas, we deal with patients of about the same racial, socio-economic, and medical status as does Dr. Johnson's service. We see this disease in quite similar situations. From January 1, 1950, to July 1, 1951, we have admitted and treated 32 such patients.

The authors say that 95 per cent of their patients came to the hospital because of pain. This is true in Dallas, too. This class of people characteristically do not seek medical aid until the pain is unbearable. They do not concern themselves with such minor things as vaginal discharge or even vaginal bleeding. But pain is something they cannot cope with and only in its presence do they seek help. By this time the disease process is extensive. Pelvic pain and tenderness in the young Dallas Negro girl, almost always indicate pelvic inflammatory disease. Sometimes they are symptoms of extra-uterine gestation. We tend to look upon pelvic pain in the Negro girl as follows:

Pain means pelvic inflammatory disease or ectopic pregnancy.

Pain and tenderness mean pelvic inflammatory disease and perhaps ectopic.

Pain, tenderness and fever mean pelvic inflammatory disease.

The authors stress several fundamentals in the management of these patients. We are in hearty agreement with these basic ideas. Certainly, the trend in management of pelvic inflammatory disease is conservative. This trend has been somewhat enhanced by the advent of numerous antibiotics and various forms of chemotherapy. However, they have not greatly altered the course of old, chronic inflammatory disease, as the authors point out. On the other hand, we feel that they have a definite place in the treatment of acute gonorrheal salpingitis and oophoritis. Since we began the use of penicillin in such patients, we have seen a decline in the amount of residual damage in that group and not so many pelvic invalids attend the clinic.

Although management should be conservative, pus should be drained by the most expeditious route, be it vaginal or abdominal. Several times we have used the abdominal approach in preference to vaginal because the abscess pointed in that direction. We have not had occasion to use extra-peritoneal packing prior to abdominal drainage.

I wish to emphasize the authors' indications for further surgery. Not all of these patients require additional operative procedures, since resolution of the process may follow drainage of pus. It is only with repeated exacerbation and when the patients become "pelvic invalids" that they are candidates for further operations. In these patients with acute exacerbation of an old and destructive inflammatory disease we have considerably shortened the interval between the last attack and operation. When the patient's temperature remains normal one week after an exacerbation and does not rise after vigorous pelvic examination, abdominal operation can be safely undertaken, particularly if all the genitalia are removed. If however, one contemplates salvage of an ovary, the procedure is best delayed.

Any time that abdominal surgery is done for pelvic inflammatory disease you must answer one question. Is any part of the internal genitalia salvageable, or has the disease progressed to a point where total extirpation is essential? If a tube and ovary can be preserved as a unit, we usually do so. If no part is salvageable, total extirpation must be done, and in such patients, any lesser operation will not cure them. As pointed out by the authors, total hysterectomy must be done. Besides a smoother postoperative course the cervix should be removed because it is a focus of infection and is also the site of origin of 60 per cent of all genital malignancies. The authors' statement, "Conservative surgery usually means additional surgery," is most applicable here.

Dr. Johnson (closing).—I should like to emphasize the fact that primary operation with removal of the abscess is by far the most satisfactory procedure. This, however, is usually done after the acute process has well subsided. However, an occasional case which shows no tendency to subside, despite all efforts to bring this about, must have operation. This is done even where fever and painful masses have continued, despite bed rest and antibiotics. One should have no hesitation in operating in such instances with removal of the abscess even though technically there be some difficulty. We have had no reason to regret this.

We feel that the principles of treating tubo-ovarian abscesses have changed very little, even since the advent of sulfa drugs and antibiotics.

RELIEF OF PAIN BY TRANSORBITAL LEUKOTOMY*

By CASEY E. PATTERSON, M.D.
and
C. C. NASH, M.D.
Dallas, Texas

In an endeavor to find some surgical procedure that would relieve the pain suffered by the patient with cancer, or other diseases accompanied by severe pain, transorbital lobotomy has been tried for the past 2 years. The results will be given later. This type of patient, usually very ill by the time relief is sought for, could not stand a major procedure and in most cases certainly is financially unable to stand a large hospital and doctor bill. They usually are poor, starving and unable to obtain relief from any medication for more than a few hours at a time. In doing a transorbital lobotomy on this type of patient one does the least extensive surgical procedure; one that costs the patient relatively less than any other type, and one that offers him the best chance for relief from the pain, mental anguish and hunger: one that usually causes him to stop worrying over the pain, over the fear of dying and of how he will die, and allows him again to eat and gain weight and live more comfortably than before. Other surgical procedures for the relief of pain fall far short of these results.

The results of transorbital lobotomy done by Dr. Nash, Dr. Knapp and me in 12 cases are as follows:

Mr. O. C. T. was seen in consultation with Dr. Roberts. His diagnosis was post-hemorrhagic thalamic pain with a paralyzed right arm and leg with aphasia due to a cerebral vascular accident due to hypertension. This had occurred in December 1948. The patient progressively became more difficult to manage because of continued pain. He was very uncooperative, moaned and groaned continuously, and required heavy sedation. He was given as much as 600 mg. demerol® and 6 grains of nembutal® in 24 hours with only slight sedative effects. He did not sleep at night even with barbiturates and narcotics. Paraldehyde only made him groggy. This condition continued for about six months. The patient screamed and groaned, recognized his family only at intervals and was strictly a "vegetable." Transorbital leukotomy was done on October 20, 1949 under sodium pentothal.® The patient has had only one episode which required any type of sedative since that time; he is as quiet and peaceful as a baby. He is living, as of this date, and the results are considered excellent as far as controlling his symptoms. No sedatives have been used since the operation. The only symptom following the operation was a slight discoloration of the left eye which cleared up in a few days.

Mrs. K. N. was seen in December 1949 in consultation with Dr. Tomkies. The diagnosis was traumatic senile psychosis. She was 93 years old. She slipped and fell, breaking her left hip on August 13, 1949. The hip was pinned in October, 1949 and she developed a psychosis following this in which she screamed continuously while awake. Heavy sedation was the only thing that quieted her. Transorbital lobotomy was done on October 26, 1949 with no relief. As she stood this procedure well and it was believed that not sufficient frontal cut had been made, it was repeated on December 4, 1949. She was quieter following this, still had periods of screaming, but these were more easily controlled with sedation. She expired on December 15. The final diagnosis was renal failure.

Mrs. W. T. D. was referred to us from Lubbock, Texas for severe trigeminal neuralgia. She was first operated upon in 1946 with section of the fifth nerve as it entered the gasserian ganglion. Following this procedure she said she had had no relief at all and she returned several times during the next two years with the same pain and disability that she had prior to surgery. She had taken every type of medicine during this time and nothing relieved her. She returned on October 24, 1949 and because of the loss of sensation over the side of the face involved with the typical postoperative burning pain, it was decided that a transorbital lobotomy offered the best relief and this was done at that time. She was perfectly comfortable the next morning and left the hospital two days later with no complaint of pain. She has not been heard from since that time.

Mrs. C. H. N. was referred from Waco, with severe trigeminal pain. She was first operated upon in 1945. Following this she had the typical postoperative burning, crawling painful sensation over the side of the face involved, with anesthesia. She visited several of the large clinics in the North and East. They all offered her no relief. She was re-operated upon in 1947 with no relief and had procaine and alcohol injections of the branches with no relief, even though she still had anesthesia of the side of the face. Finally in November, 1949 a transorbital lobotomy was done with absolutely no relief of this condition at all and when last heard from in September of 1951 her pain and burning had persisted as severely as before.

Mr. J. C. was seen in consultation with Drs. Schwenkenberg and Knapp. His history was that he had been taking morphine because of severe pain from sinus infection since 1936. He had been treated 6 times for addiction with no results. It was decided that a transorbital lobotomy should be tried in an attempt to rehabilitate this man. It was done on September 7, 1949. The pain that he had complained of for these 13 years was relieved but the patient is still a narcotic addict.

Mrs. E. H., a 51-year-old woman was seen in consultation with Dr. Holt. She had severe pain in her right hip and leg due to metastasis to the lumbar spine from carcinoma of the cervix which was diag-

*Read in Section on Neurology and Psychiatry, Southern Medical Association, Forty-Fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

nosed and treated with radium in 1948. She was unable to walk or use her leg when first seen. A transorbital lobotomy was done on July 16, 1949. The patient was immediately relieved of her pain. She got out of bed and walked around. She began eating and gained weight and did well until 2 weeks before her death, at which time some of the pain had returned and it was necessary to give her codeine for this pain. She died on October 20, 1949.

L. B., a 57-year-old colored man was seen at Parkland Hospital. He was operated upon January 10, 1949 for adenocarcinoma of the stomach, a subtotal resection being done. By June 1949 he had suffered severe pain which progressively became worse until November 7, 1949 when he was admitted to the hospital for a transorbital lobotomy. This was done and he had immediate relief of his pain. He was discharged from the hospital on November 11. He was eating well and was able to care for himself. He expired on January 24, 1950 with no return of his pain.

Mrs. L. P., a 55-year-old woman was operated upon in 1939 for carcinoma of the left breast. When seen in July 1949 there was marked metastasis to the lumbar spine. She was bedridden and in constant severe pain which required morphine for any relief. A transorbital lobotomy was done on July 6, 1949 with complete relief of pain and within one week she had gained 12 pounds. Deep x-ray therapy and radioactive phosphorus were given and the x-rays made in 1950 revealed regeneration of the bones which had been partially destroyed by carcinoma. She continued to be free of pain until October 1950 when it again became necessary to give her codeine and aspirin for relief of her pain. She expired on February 5, 1951 and it was necessary to give morphine the last week of her life.

Mrs. P. R., a 46-year-old white woman, was seen at Parkland Hospital. She was operated upon in Austin, Texas in 1939 and tumors were removed from her uterus. She had no further trouble until March 1951 when she began bleeding again. A hysterectomy was done in April and x-ray treatments given as she had a carcinoma of the cervix. By May 1951 she began to have severe pain in her suprapubic area radiating into the lumbar and sacral areas accompanied by severe diarrhea. A transorbital lobotomy was done on September 20, 1951 at which time she was taking morphine every 2 hours for relief. The pain was relieved and the patient was up the next day, helping care for the patients on the division. She required an occasional dose of morphine for the next 7 days, at which time she was discharged from the hospital, eating well, gaining weight and complaining occasionally of pain. When last seen on October 2, she had some pain but was up doing her own work.

W. B., a 29-year-old colored woman, was seen at Parkland Hospital where she had been admitted in May 1951 with a diagnosis of carcinoma of the vaginal wall and endometrium. D & C Biopsy was done. She was readmitted on June 15, 1951 with a diagnosis of carcinoma with general metastasis. She was in severe pain with marked abdominal distension so that she looked as though she were at full term pregnancy. A transorbital lobotomy was done on June 16, 1951. She had complete relief of pain. She ate heartily and was discharged from the hospital on June 26. She required no further narcotics. She died on July 17 but did not complain of pain.

R. P., a man, seen at Beverly Hills Sanitarium with a diagnosis of post encephalitic headaches, had had severe continuous headaches for 10 years due to encephalitis in 1939. Encephalograms were normal. Medicine gave him no relief. He had been treated by many doctors with no success. A transorbital lobotomy was done on October 17, 1949 with relief of his pain for a few days, but his headaches soon returned and became worse by January 1950. In March 1950 a bilateral prefrontal lobotomy was done with complete relief of pain, he was able to return to work on July 2, 1951 and has been working daily since then.

Mrs. I. Z. was sent here from the tuberculosis sanitarium at Carlsbad, Texas on September 12, 1951. She had had tuberculosis for several years and at first had done well on treatment but developed a tension type of headache which was not relieved by any form of medication and due to this her tuberculosis had flared up and was uncontrollable. She had had psychiatric, medical examinations and treatments. Her electro-encephalogram showed marked changes but no localizing signs. Her spinal fluid pressure and the tests of the spinal fluid were perfectly normal, as were x-rays of the skull, except for a calcified cyst of the scalp, which showed on x-ray. This patient had been given morphine, dolophine,® sodium amytal® and many other narcotics and sedatives with no relief of her headache. She was admitted to Parkland Hospital on September 12, 1951 and a transorbital lobotomy was done on September 13, 1951 at 3:00 o'clock in the afternoon because we were unable to control her with any type of medication. By 5:30, she was awake and asked for something to eat and said she felt well. She remained in the hospital for two days, had no complaints whatever, except that they did not feed her enough. Since she returned to the sanitarium, she has continued to eat and gain weight and has had no complaint of headache at all.

These 12 cases are presented for what they may be worth. There have been no deaths nor surgical complications due to the surgical procedure in this series. Dr. Knapp will discuss the psychiatric changes and give his opinion as to the efficacy of this procedure.

DISCUSSION (*Abstract*)

Dr. Joseph L. Knapp, Dallas, Tex.—I have had the opportunity of seeing all the cases reported both before and after operation.

In presenting this paper the authors kept in mind one of the basic concepts of the Hippocratic Oath, which is the relief of pain and suffering. Following the work done by Dr. Walter Freeman they are presenting a relatively simple procedure, in experienced hands, of relieving cases of intractable pain. Every practicing physician is faced with the very difficult problem of relieving pain in far advanced cases of carcinoma, as well as other causes of intractable pain. We are all fully aware of the situation of being required to prescribe increasingly large doses of opiates to such cases, and obtaining at best only a minimal

amount of relief of a very temporary nature, and in addition being faced with the problem that increasingly large doses of narcotics produce, not only on the patient, but also on his immediate family.

The transorbital lobotomy procedure for the relief of pain presents a minimum of surgical risk to patients who are normally considered poor surgical risk. It produces to the lay person no appreciable changes in the patient's personality. It likewise requires only a relatively short period of hospitalization, rarely over several days.

In the small number of cases presented excellent results were obtained in approximately 80 per cent, with poor or no results in the remaining 20 per cent. These are far better results than can be given to this type of patient by other means.

Psychiatrically speaking, one must keep in mind that a patient with intractable pain presents an emotional problem in himself, which causes psychic trauma in members of his family. The results emotionally of a patient with intractable pain on increasingly large doses of narcotics reach beyond the patient himself, as every practicing physician well knows.

The psychiatric changes produced by transorbital lobotomy are not only relief of pain but relief of anxiety and tension for the patient, and the family. In no instance in this series was there any noticeable change in the patient's personality or effect on his mentality.

Postoperatively these patients present an unusual situation. They show none of the psychological symptoms when their narcotics are withdrawn, but unless some very short withdrawal procedure is used they have all of the usual physical symptoms of withdrawal. They tell you they still have their pain but it does not bother them and they feel good.

In conclusion, based on the relatively small series, I feel the results are so gratifying in cases of intractable pain, where medical science to date has little to offer except increasingly larger doses of narcotics, with all of the unfortunate bad side-effects, that this procedure merits further use and investigation.

INTRACEREBRAL HEMATOMAS*
A SURVEY OF 106 VERIFIED CASES

By GUY L. ODOM, M.D.
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and
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In the course of a review of all cases of intracranial hemorrhage occurring in the Duke Hospital during the past twenty years, 106 instances of intracerebral hematoma formation have been encountered. Of these, 81 were verified by necropsy study and 25 were viewed at the time of neurosurgical intervention. The demonstrable pathologic causes for these vascular lesions were as follows: hypertensive cerebral arteriosclerosis 55, ruptured congenital cerebral aneurysms 28 and angiomatous malformations of the brain 9. In 14 cases, no etiological factor could be found. The relatively low mortality noted in the cases in which operative treatment was undertaken suggested a detailed scrutiny of the clinical course of the group as a whole. Further stimulus for this survey was derived from the provocative pathologic entity commonly termed "spontaneous intracerebral hematoma."

HYPERTENSIVE CEREBROVASCULAR DISEASE

These 55 instances of intracerebral hematoma comprised 52.8 per cent of the total number of cases studied. The age variation ranged from 15* to 75 years with an average of 44. A history of pre-existing arterial hypertension was obtained in 45 of the 55 cases and the admission blood pressure was elevated in 50 cases. Four cases were *in extremis* upon admission. The remaining patient did not show an elevation of blood pressure upon admission but was included in this group because of the pathological changes noted at autopsy.

The outstanding symptom was loss of consciousness. In 30 of 54 cases,† the initial symptom was sudden loss of consciousness, while in the other 24 cases, loss of consciousness was delayed longer than one hour with preceding symptoms of headache, aphasia or paresis. In only 49 patients was there an adequate history to date the onset of bleeding. The majority of the cases expired within the first 48 hours; 27 died within 24 hours, eight within 48 hours, 11 within 15 days, and one survived five months in a comatose state. Only three patients had a history of a previous bleeding episode; the remaining 52 were admitted during their initial accident, making the average number of bleeding episodes for patients in this group approximately 1.06.

In addition to impairment of the state of consciousness, the neurological examination

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*A 15-year-old male with bilateral hydronephrosis and pyelonephritis.
†In one case, the data were inadequate.

disclosed, in most instances, grave defects such as hemiparesis and aphasia indicative of the massive extent of the intracerebral hematoma. In 41 of 55 cases, examination of the cerebrospinal fluid disclosed evidence of fresh hemorrhage.

Operation was attempted in but three patients in this group. In the single patient who survived, craniotomy and transcortical exploration disclosed a hematoma of the right temporal lobe for which no other cause than hypertensive vascular disease could be demonstrated. In the second patient, a hematoma of the left frontal lobe developing from arteriosclerotic rupture of the left middle cerebral artery was removed by a similar technic but the patient died on the fifth postoperative day from a recurrent hemorrhage, verified by autopsy. In the third instance, trephine and aspiration of a hematoma of the basal ganglia were attempted.

Autopsies were performed on 53 of the 55 patients. Vascular or renal disease was present in all cases. Arteriosclerosis, generalized arteriosclerosis, and arteriolonephrosclerosis were evident in 45 cases. Pylonephritis and hydronephrosis were present in three cases, glomerulonephritis in one case, renal tuberculosis in one case, and eclampsia in three cases. The hematomas were located mainly in the lenticulostriate area. The basal ganglia were involved in 41 of the 55 cases, or in 75 per cent of the total. This included ten cases of massive hemorrhage in which the basal ganglia were involved, but the origin of the bleeding may have been outside of the lenticulostriate area. There was a case of bilateral basal ganglia hemorrhage. The second most common location was the pons with five hemorrhages in this area. The clinical and pathological findings in seven similar cases have been described by Epstein[1] in a recent report. They were all primary and not secondary to increased intracranial pressure due to supratentorial hematomas. The other nine hematomas were scattered throughout various lobes of the cerebral hemispheres, including one cerebellar hematoma *(Table 1)*.

LOCATION OF HEMORRHAGE IN "APOPLEXY" (55 CASES)

Location	Number of Patients
Basal ganglia	41
Pons	5
Cerebellum	2
Cerebellum and basal ganglia	1
Occipital lobe and pons	1
Temporo-parietal region	1
Temporal lobe	1
Parietal lobe and pons	1
Parietal lobe	1
Frontal lobe	1

TABLE 1

CONGENITAL CEREBRAL ANEURYSMS

During the time period of this survey, 74 cases of congenital cerebral aneurysm with acute intracranial hemorrhage were observed, 29 of which were operated upon by means of an intracranial approach and the remainder were verified at autopsy. Of these 74 instances of ruptured cerebral aneurysm, 28 developed an intracerebral hematoma. Nine were encountered during neurosurgical intervention and 19 were studied at autopsy. In view of the main thesis of this survey, a separate analysis of the operative and autopsy cases was made.

In the nine cases with operation, the age varied from 22 years to 41 years, with an average of 32 years. A history of hypertension was obtained in two cases, and their blood pressure was elevated on admission; however, a postoperative check has revealed the blood pressure of one to be normal. In these nine cases, there were two deaths. These patients died 14 and 16 days after their last hemorrhage and had bled two and three times respectively. The survivors bled an average of two times each and were operated upon from five to 150 days from their last bleeding episode. Omitting the one instance of 150 days, in which the patient had a calcified hematoma, the average number of days from the last bleeding episode to operation was 26 days.

There were 19 cases of intracerebral hematoma, secondary to ruptured aneurysms, which were not operated upon but were verified by autopsy. Adequate data were available in only 18. In this group, the age varied from 18 to 78 years, with an average of 42. A history of hypertension was obtained in five cases, and the blood pressure was elevated in nine cases upon admission to the hospital. The postmortem examination gave evidence of cardiovascular renal disease in three cases. The number of days from the last rupture until death varied from one to 15 days, with nine patients dying in the first 24 hours. There

was an average of only four days intervening from the last known rupture to death. Multiple ruptures occurred in 11 of the 18 cases *(Table 2)*.

In 17 of the 28 cases, headache represented the initial symptom; loss of consciousness was the next in numerical import, occurring in seven patients, but 22 patients lost consciousness in the course of their illness, and in five, consciousness was impaired. A seizure was noted as the initial symptom in three cases and 13 patients developed seizures prior to operation or death. In only one case was hemiparesis an initial complaint but 11 other patients gradually developed hemilateral extremity weakness or paralysis.

The two most common locations of these hematomas were the frontal and temporal lobes. The former were involved in 17 cases (one bilateral) and the temporal lobe in seven cases *(Table 3)*. The 17 frontal lobe hematomas were due to aneurysms in the following locations: four anterior cerebral, four at the junction of the anterior cerebral and anterior communicating, three anterior communicating, three internal carotid and three middle cerebral. The seven temporal lobe hematomas were caused by four aneurysms on the middle cerebral, one at the junction of the internal carotid and posterior communicating and two on the posterior communicating. The two basal ganglia hemorrhages were due to two aneurysms at the bifurcation of the internal carotid; the massive hemispheric hematoma rose from an aneurysm of the middle cerebral and the one involving the corpus callosum was derived from an aneurysm of the anterior communicating artery.

MULTIPLE RUPTURES
(11 OF 18 CASES)

Number of Patients	Number of Bleeding Episodes	Elapsed Time (Days)
1	2	2
1	2	4
1	3	7
1	2	10
1	3	13
4	2	14
1	5	14
1	2	60

TABLE 2

INTRACEREBRAL HEMATOMAS SECONDARY TO ANEURYSMS
(28 CASES)

Location	Number of Patients
Frontal lobes (1 bilateral)	17
Temporal lobe	7
Corpus callosum	1
Basal ganglia	2
Massive hemispheric	1

TABLE 3

ANGIOMATOUS MALFORMATION OF THE BRAIN

A total of 33 angiomatous malformations were verified during this period and in nine of these cases intracerebral hematomas were found, an incidence of 27 per cent. The ages in this group varied from two years to 36 years with the average age being 17. None of the cases gave a history of hypertension and the blood pressure on admission was elevated in only one case and remained slightly elevated on postoperative checks.

The initial symptom in eight cases was headache and in one case loss of consciousness but there was a total of five patients who lost consciousness during their illness and one became stuporous. Various degrees of paresis became evident in six patients and only one developed convulsive seizures.

Of the nine cases, three were operated upon with no deaths. One was a 22-year-old man who had an arteriovenous aneurysm between the anterior cerebral artery and inferior sagittal sinus, with a large hemorrhage into the right frontal lobe. The second was an 18-year-old man who had a small cortical angioma in the left parietal region with a hematoma in the parietal lobe. The third case was a 36-year-old woman who had an arteriovenous angioma in the right frontal lobe with a hematoma in the fronto-parietal region.

Two of the three patients were operated upon on the thirtieth day after their last bleeding episode, one having experienced two episodes and the other one episode. The third case was operated upon on the forty-fourth day.

The six cases that came to autopsy all died within four days after the onset of bleeding; one patient died the same day with his fourth recurrence, one died the second day with his first episode, three died on the third day, each having only one episode, and one died on the fourth day with the initial episode.

The most common location was the frontal lobe in four cases, next the parietal in two,

the fronto-parietal in one and the cerebellum and pons in one each *(Table 4)*.

Autopsies were performed upon six cases and there was no evidence of cardiovascular renal disease in any case. The lesion responsible for the pontine hemorrhage was a large cavernous angioma; the cerebellar hemorrhage was due to an arteriovenous angioma which presented on the lateral surface of the left cerebellar hemisphere. The four other hemorrhages were caused by lesions which varied in size from microscopic to small arteriovenous angiomas that could be recognized grossly. They were all situated within the hemispheres.

INTRACEREBRAL HEMATOMA OF UNKNOWN ETIOLOGY

There were 14 cases of intracerebral hematomas in which no etiological factor could be determined. The ages varied from eight years to 48 years, the average age being 26. None of the patients had a past history of hypertensive cardiovascular disease. Three patients had an elevated blood pressure on admission and two of them are known to have normal pressures since operation. The remaining patient, age 15, was admitted *in extremis* with a blood pressure of 250/180 and he died four hours after onset of symptoms. Autopsy was obtained but was restricted to the head, which revealed a massive hematoma in the left frontal lobe. It is, therefore, not definitely known whether he had any other cause for his increased tension other than increased intracranial pressure.

The most common initial symptom was headache which occurred in nine cases. Two began with convulsive seizures but two others developed seizures subsequently. Loss of consciousness was not an initial symptom in any of the 14 cases, although three cases did lose consciousness and five others became stuporous. Seven patients developed some degree of paresis during their illness but this never appeared as the initial symptom.

Of the 14 cases, 10 were operated upon by evacuation of the hematoma through a cortical incision and all lived. The other four were not operated upon and were studied at autopsy. The number of days from the last bleeding episode to death in these four cases was one, four, nine and 14 days. In the operative cases, the time from last bleeding to operation varied from three days to three weeks, the average being approximately two weeks. Seven of the 14 cases gave a history of a previous episode of bleeding and the other seven had experienced only the one episode.

The location of the hematomas was as shown in *Table 5*, the temporo-occipito-parietal region being the most common site.

DISCUSSION

This analysis of 106 cases of intracerebral hematoma represents one component part of a continuing neurosurgical survey of all types of intracranial vascular hemorrhage encountered at the Duke Hospital during the past 20 years. It has stemmed directly from a desire to delineate more adequately those instances of intracerebral hematoma formation that may be aided by operation and from a hope that more information may be gained concerning the cause of the more obscure types of intracerebral bleeding. All cases secondary to trauma and blood dyscrasia have been excluded. When these assembled facts are considered, this group appears to fall into two categories, the first made up of the apoplectic and aneurysm cases and the second, those proven cerebral angiomas and the unknown cases.

The most serious symptom or sign in the entire group was impairment in the state of

HEMATOMAS SECONDARY TO ANGIOMA
(9 CASES)

Location	Number of Patients
Frontal lobes	4
Fronto-parietal	1
Parietal	2
Cerebellum	1
Pons	1

TABLE 4

HEMATOMAS UNKNOWN ETIOLOGY
(14 CASES)

Location	Number of Patients
Pons	2
Temporal	2
Occipito-parietal	1
Lateral ventricle	1
Frontal	1
Occipital	3
Cerebellum	1
Parietal	2
Fronto-temporal	1

TABLE 5

consciousness which closely paralleled the mortality rate. Sudden loss of consciousness as the initial symptom occurred most frequently in the apoplectic and next in the aneurysm group, whereas it occurred only once in the angioma and not at all in the unknown group. In each group there was progressive impairment in the state of consciousness to stupor or complete coma in at least 50 per cent or more of the cases *(Table 6)*.

The existence of hypertension does not appear to be a conclusive factor in terms of differential diagnosis; although an elevation in blood pressure was present in 54 of the 55 cases of the apoplectic group, it was also noted in seven of the 29 cases of congenital cerebral aneurysm. It should also be pointed out that hypertension may be secondary to the sudden rise in intracranial pressure caused by intracerebral bleeding. This phenomenon occurred in three of the cases of unknown etiology at the time of admission and postoperative study subsequently disclosed a normal state of arterial tension.

Acute subarachnoid bleeding occurred in 41 of the 55 cases of hypertensive arteriosclerotic cases, in 24 of the 28 congenital cerebral aneurysms, in six of the angiomas and in eight of the cases of hematoma of unknown etiology. It did not, therefore, represent a decisive diagnostic factor. On the other hand, clear cerebrospinal fluid does not rule out intracerebral hematoma and Merritt[2] has also found that only 75 per cent of cases of intracranial hemorrhage extend into the ventricle or the subarachnoid space. A history of a previous episode of bleeding does appear significant in that the apoplectic cases demonstrated only 1.06 episodes of bleeding whereas in the aneurysms and angiomas, there was an average of 2.0 episodes.

The age variation was more extended toward the older age groups and the average age was greater in the arteriosclerotic cases than in the congenital cerebral aneurysm cases. There were no significant alterations in the neurological patterns following the onset of bleeding.

Definite similarities do exist between these two classes of patients; the age groups are not too dissimilar, both may have hypertension, the onset of symptoms is marked by rapid loss of consciousness in both and the mortality is high in both groups within the first 24 hours. They differ widely in terms of location of the hematoma and this is most significant from the point of view of neurosurgery. In the apoplectic cases in this series, 83 per cent, or 46 cases, developed hematomas in the basal ganglia or pons. In the aneurysm cases, 24 of the 29 cases developed hematomas in the frontal or temporal lobes. Occasional cases of arteriosclerotic origin may be treated with success, as was one in this series.* Favorable reports have been published by Furlow, Carr and Wattenberg,[3] by Meredith,[4] by Bagley,[5] by Penfield,[6] by Browder and Corradini,[7] by Russell and Sargent[8] and by King.[9] The majority of these cases survived the initial impact of bleeding and developed evidence of increased intracranial pressure.

Time survival before operation or death in the two contrasting pathologic entities is indicated most clearly in the hematoma cases of aneurysmal origin. In the nine operative cases, the procedure was not carried out until an average of 26 days following the initial episode of bleeding. In the cases studied at autopsy, nine died in the first 24 hours, whereas 11 survived from two to 15 days after the initial episode of bleeding. In the light of our present experience, some, if not all, of these 11 patients should have had the benefit of operative intervention. This experience may be summarized by stating that all of the resources of the neurosurgical armamentarium should be used toward the operative relief of patients with an intracerebral

SYMPTOMS AND SIGNS

		Loss of Consc.	Paresis	Fits	Headache	Other
"Apoplexy"* 54	Initial	30	15	4	13	..
	Delayed	24	14	6	..	..
Aneurysms 28	Initial	7	1	3	18	..
	Delayed	21	12	13	27	..
Angiomas 9	Initial	1	..	..	8	..
	Delayed	5 (1 stupor)	6	1	8	..
Unknown Etiology 14	Initial	1 stupor	..	2	9	2
	Delayed	3 (5 stupor)	7	4	9	1

*Data inadequate in many cases, because patients moribund or dead on arrival.

TABLE 6

*Two other patients have been operated upon with success since these figures were compiled.

hematoma if they survive the first 24 hours of their illness.

The clinical syndromes of those patients developing hematomas from verified angiomas and those forming hematomas that have been termed of unknown origin or of spontaneous origin seem even more closely related. Both are noted in a younger age group, both may exhibit a history of previous bleeding episodes, they are not associated with hypertension and they rarely show any abrupt loss of consciousness. They are not unlike the case reports of Olivecrona[10] who found a 20 per cent incidence of hematoma formation in a series of 60 arteriovenous aneurysms. It is of further interest that, during the 20-year period of this study, no deaths from hemorrhage have occurred as the result of rupture of the massive type of cortical racemose arteriovenous aneurysms. The deaths that did occur were caused by rupture of small and minute angiomas that have been described recently by Margolis, Bloor, Odom and Woodhall.[11] Because of the difficulty encountered in recognizing these lesions that may be virtually destroyed by hemorrhage, it seems probable that the hematomas variously depicted as unknown or spontaneous[12–17] are in reality caused by this unique malformation.

In this series of hematomas rising from small angiomas and in the earlier cases which had been designated as of unknown etiology, 25 patients were operated upon with five deaths. Formal craniotomy, preceded by routine diagnostic measures, transcortical incision and evacuation of the hematoma, has been the technical procedure used in all cases.

SUMMARY

This report comprises a clinical and pathological study of 106 intracerebral hematomas caused by hypertensive arteriosclerotic vascular disease, by the rupture of congenital cerebral aneurysms and by the rupture of small cerebral angiomas. It also includes a discussion of the relationship between the last group and that commonly termed of unknown or spontaneous etiology. The low mortality rate in the cases that have been operated upon and the increasing fund of pathological knowledge that is accruing, encourage a more aggressive approach to this general problem.

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DISCUSSION *(Abstract)*

Dr. William S. Fields, Houston, Tex.—The frequency with which intracerebral hematoma is encountered is often underestimated and consequently many patients who might benefit from neurosurgical intervention succumb to the bleeding.

Several important considerations are brought out by Dr. Odom in this study.

(1) The low mortality rate in those operated upon.

(2) The fact that the presence of blood in the spinal fluid does not rule out the possible existence of intracerebral clot, and

(3) That particularly in the aneurysm and angioma groups surgery in the first few days or weeks after the onset of bleeding may save some of the patients who otherwise live to have an operation later.

Our experience at Baylor parallels essentially that of the group at Duke. We have not made a survey of this nature but I feel that we might profit considerably by doing so.

Although the evidence points to more favorable results in the cases with berry aneurysms or congenital angiomas one should not overlook the fact that some of those cases with hypertension and arteriosclerosis may benefit from early surgery. Of course, as Dr. Odom points out, the fact that 75 per cent of this latter group in their series bled into the basal ganglia and an additional 10 per cent into the pons initially,

gave an almost hopeless prognosis in most of these patients from the onset.

I should like again to thank Dr. Odom and his collaborators and to add emphasis to his remarks that with increased understanding of the pathological processes involved and an appreciation of the low operative mortality we can well afford to approach this problem more aggressively.

LOWER EXTREMITY AMPUTATIONS*

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and
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This paper is based on the experience gained at Walter Reed Army Hospital, one of our Army's amputation centers, in the amputation and fitting of several hundred World War II and Korean casualties as well as other cases during the past five years. As a result of our experience and a study of the immediate and follow-up results of cases performed elsewhere, several new procedures are advocated. This paper endeavors to set forth briefly our present ideas concerning lower extremity amputations.

AMPUTATIONS IN THE FOOT

The present Korean conflict has given us more cold injury or frostbite cases than we have had for some time. These cases gave us most of our amputation problems of the digits and forefoot.

The limbs of patients with frostbite are edematous for some time. Amputation must not be done early as a level higher than necessary or possible slow healing or failure may result.

Early these patients should be treated by elevation of the part with as much movement maintained as possible. Infection is often entirely prevented by antibiotics. Dressings are not necessary, but if used should be only protective and should never limit function. Ointments should not be applied. Hard, dry eschars of superficial gangrene must be watched to avoid formation of constricting bands. These must be incised. Often in eight to twelve weeks or more on removal of this type eschar no amputation is indicated.

The cases of cold injury with superimposed infection can usually be controlled with antibiotics. A series of ten cases have been treated with enzymatic debridement, with local applications of streptokinase and streptodornase or trypsin.[1] This treatment has produced a shortened duration of infection, edema, and pain in the part and allowed definitive surgical treatment earlier than those not so treated.

The digits of the foot should be removed only when hopelessly gangrenous, and when a definite line of demarcation is present. The amputation should be of the open or so-called guillotine type and traction should be applied to draw the remaining skin down over the bone end. Plastic revision is done later, with removal of bone if necessary. This should be done only when the stump is "dry" or sealed over with skin or scar formation. Viable digits should be saved even though only one remains as this will assist in holding a toe pad in the shoe and aid in balance.

Elective amputations of the digits should be avoided if at all possible, particularly of the great toe because of its importance in normal gait. Total removal of the second, third, or fourth toes removes the buffer action of that toe and later produces hallux valgus or other toe deformities. Severely deformed toes can often be treated by partial or total excision of the proximal phalanx and amputation may be avoided.

Amputation through the metatarsophalangeal joints or through the distal one-half of the metatarsal area produces a balanced, useful partial foot. Unilateral as well as bilateral partial foot amputees walk well. Amputations proximal to this in the foot are in general unsatisfactory due to instability, and most of them have to be converted to another type.

It is useless, in general, to cover the end of any weight-bearing surface with skin grafts or other anesthetic skin as it breaks down on use.

SYME AMPUTATION

The Syme is an excellent amputation. A well-shaped pad, well fixed over the end of the tibia with the malleoli removed at the same level produces a good weight-bearing stump. The amputation stump functions much better than a short partial foot.

We are now performing this amputation in two

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stages in all of our infected cases. This method is used even with large gangrenous areas over the posterior surface of the heel due to cold injury or decubitus (*Fig. 1*). These areas granulate in nicely and the scarred areas contract. In the first stage all the bones of the foot are removed through modified incisions, a U-shaped incision from the tips of each malleolus across the plantar surface of the foot in the mid-metatarsal area and another U-shaped incision from the same point across the top of the foot (*Fig. 2A*). The flaps are made longer than in the one-stage amputation, to permit a loose closure. The skin is handled carefully, the talus is disarticulated in the conventional manner, and the bones of the foot are shelled out.

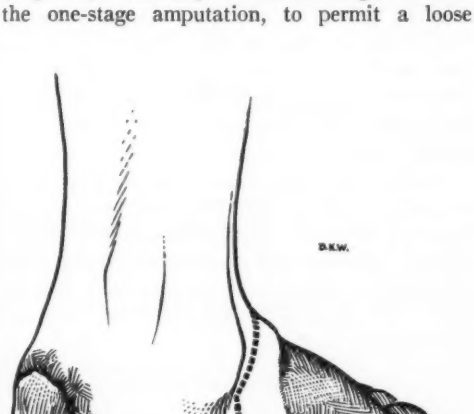

FIG. 1

A typical frostbite case suitable for the two-stage Syme procedure.

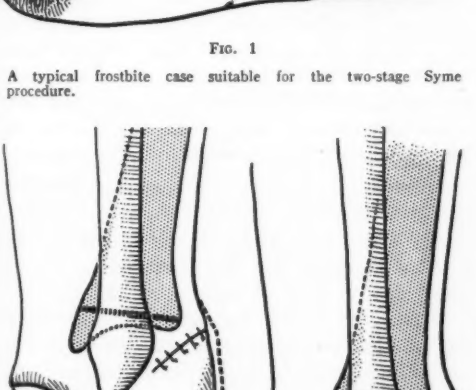

FIG. 2

(A, left) Closure of first stage. Calcaneal ulcer left open. (B, right) Final or second stage, showing ulcer healed and malleoli removed.

The tendons are not pulled down and severed high at this stage as is usually recommended.[2] The malleoli are left intact and after cleaning out all infected and necrotic bone and soft tissues, the skin margins are approximated loosely with a drain in place, after which a firm positional dressing is applied. The drain is removed in forty-eight hours.

When completely healed, the suture line is reopened in a second stage. The malleoli are removed and the heel pad fitted well over the bone ends (*Fig. 2B*). Of thirty limbs amputated in this manner, only two required higher amputations.

The use of the two-stage procedure first described by Hulnick[3] enabled us to obtain a good Syme stump in twenty-eight patients who would ordinarily have had an amputation at a higher level.

The bulbous appearance of the ankle portion of the Syme amputation has not been overcome. The prosthesis must be strong enough to withstand the strain of the artificial foot. The disadvantages of the heavy below knee prosthesis has been somewhat overcome by the use of reinforced laminated resins which are as strong and not as heavy as the leather and steel types used for many years.

OPEN OR GUILLOTINE AMPUTATIONS

The use of the open type or guillotine type amputation in war wounds, in the presence of infection or potential infection, has stood the test of time. Attempted closed amputation often produces fulminating infections and osteitis resulting in the sacrifice of more stump length. An open type of amputation properly performed by incising skin, fascia, muscle and bone at levels of retraction produces a stump which on revision is often better than a primary closed amputation. Skin traction through a stockinette to only the distal three to four inches of the stump end should be applied immediately and continued. Dressings are placed outside the stockinette to absorb the drainage. This type of traction, as described by Rosenberg,[4] does not have to be discontinued as the dressings are performed. The stockinette is closely approximated to the skin margins by a drawstring which is adjusted to the stump end daily at the change of dressing.

Traction should be used until all granulations are covered and dry, before the revision is performed. Skin grafts should not be used over the open end of the amputation stump. The over-all time to produce a good stump is not shortened by operations performed through inflamed and edematous tissue.

BELOW KNEE AMPUTATION

The ideal below knee amputation site is now considered to be five and one-half to six and one-half inches below the tibial plateau. A trial was made in several cases of amputees with bone lengths of eight and nine inches of fitting them with suction socket legs but the same circulatory changes noted by other authors were encountered.[5]

Above the ideal level, amputation stumps as short as two inches can be successfully fitted. The hamstring muscles usually have to be sectioned in these short stumps. A method of rotating skin flaps used by Yount in World War I amputees at this hospital and described by Kirk[6] enabled us to obtain adequate skin coverage in many short stumps without sacrificing bone.

The necessity of using a posterior skin flap in a few amputees' stumps produced a closure much better than the regular one, so we have deliberately cut them that way when we have had enough skin (*Fig. 3*). It takes about seven inches of posterior skin below the bone end to do this as the anterior surface of the tibia should be covered at least two to two and one-half inches above the bone end. The minimum skin length required is the antero-posterior diameter of the leg at the amputation site plus two inches. All blood supply of the posterior flap is maintained. The muscles are treated as usual to make a well-shaped stump. The myofascial layer must be well fixed to the anterior fascia to prevent downward retraction of the suture line. The "dog-ears" must not be trimmed because this will narrow the base of the posterior flap and decrease its blood supply.

All below knee amputation stumps are now first fitted routinely with an ischial or gluteal weight-bearing prosthesis. Early skin complications which delay hardening and ambulation are prevented. The average patient can be ambulated earlier and develops an excellent gait early in walking classes when so fitted. After a healing period of six months to one year the stump may be fitted with a conventional below knee type. The ischial-bearing prosthesis is an excellent one to retain for "heavy duty" for all time use.

KNEE DISARTICULATION

When it is impossible to obtain a below knee stump, an infected leg should be disarticulated at the knee. The healing time is shorter than an above knee open amputation and the patients are much more comfortable. The disarticulation is performed cleanly, sparing all skin possible. The condyles are not disturbed at this stage, and the skin is closed loosely without tension with three or four sutures. Skin traction has been used in only a few cases where tightness of closure necessitated it. Treatment with irrigation and antibiotics, or antibiotics alone is used until healed.

Several such knee disarticulations have done so well in healing that they were not revised but were fitted as disarticulations. The patella did not interfere with a successful fitting. The external knee hinges and the inequality of knee levels with the end-bearing prosthesis were not objectionable in men.

ABOVE KNEE AMPUTATIONS

Above the knee, one of the end-bearing type stumps is to be preferred if it can be accomplished. Of these a Gritti-Stokes amputation seems to provide the best stump. In cases with poor circulation these are done without tourniquet, not disturbing any of the soft tissue about the suprapatellar pouch, allowing generous posterior and anterior flaps. Skin closure must be accomplished without tension to be successful.

In amputations above this level, consideration should be given for the knee block in the prosthesis. About three to four inches of bone length must be sacrificed for this. Redundancy in the stump should be avoided by providing a good myofascial flap over the bone end and fixing the anterior and posterior muscle groups. The suture line should be just posterior to the distal end. A revised open amputation often provides a better stump than a primary amputation here as the fixation of the muscles is almost always assured. Above this level all length should be preserved where possible. The only exception to this is the complication of a fused hip on the amputated side which is unsatisfactory with a long femoral stump. Unusual measures may be used to maintain amputation stump length. Non-

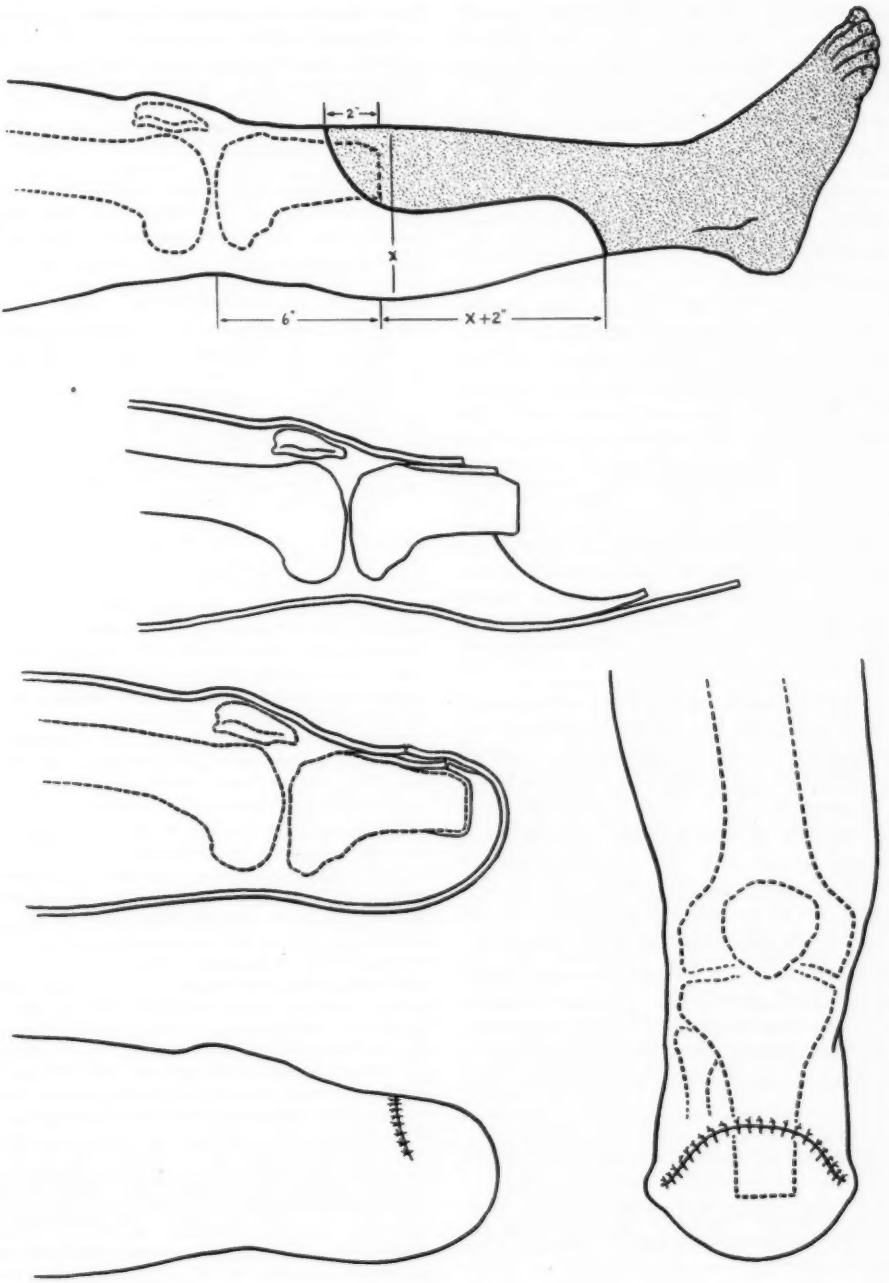

FIG. 3

The posterior flap below knee amputation showing length of skin flap necessary, the closure of the myofascial flap and closure of skin. (Note the "dog ears" which should not be removed).

union of fractures is not an indication for amputation at a higher level as a strong fibrous union is often satisfactory. The intramedullary nail and dual slotted plates have been used to preserve an adequate thigh stump. The resection of a portion of the femur, with shortening may produce a good stump and we have even turned the distal fragment of an ununited femur end-for-end to get contact with the cancellous bone of the femoral condyle to produce a firm union and a good stump.

In above knee amputation stumps the goal has now been to make a stump suitable for the use of a suction socket. Multiple surgical cicatrices have not prevented the use of the suction socket if they are non-tender and do not overlie the ischial tuberosity. All skin inflammation and defects must be completely healed prior to the attempted use of the socket. Even a very short stump can be fitted with a suction socket with the addition of a Silesian band to help retain the prosthesis. When the suction socket cannot be used an ischial bearing prosthesis with a Silesian band is to be preferred to the metal external hip joint which prevents abduction and produces an undesirable gait.

Hip disarticulations should, if possible, retain sufficient musculature to fill out the buttocks and the suture line should be well anterior. The so-called tilting table prosthesis is still quite heavy and cumbersome. It must be well fitted to the contours of the pelvis and ischial tuberosity and well fixed to the pelvis by a pelvic band. A shoulder strap is usually necessary for suspension. A knee lock is necessary in this prosthesis although many can walk without it.

Hemipelvectomy or hindquarter amputations require a good gluteal flap to be successfully closed. The prosthesis must take its weight from the opposite ischial tuberosity or the thorax or both. It is otherwise similar to the tilting table.

CONCLUSIONS

Amputations for cold injury must not be done early.

Open type amputation is still the type indicated for war wounds and potentially infected cases.

A two-stage Syme procedure is presented as a method to secure a Syme stump in infected cases.

The use of a posterior skin flap closure in below knee amputations as a method of choice in elective cases is presented.

Early knee disarticulation for infected open amputations close to the knee is advocated.

The above knee amputation should be end-bearing if possible.

All possible above knee amputees should be fitted with a suction socket prosthesis and all below knee amputees initially fitted with a gluteal bearing cuff for their prosthesis.

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DISCUSSION (*Abstract*)

Dr. Rufus H. Alldredge, New Orleans, La.—Colonel Spittler has carried on in an admirable manner since the last war at one of the Army's leading amputation centers, where he is doing a splendid job in amputation surgery and rehabilitation of the present war wounded soldiers. An amputation center, such as Colonel Spittler now heads, is the ideal place in which to handle all of the aspects of the amputation problem. Nothing else has ever been developed which is equivalent to the Army amputation centers of this country.

The principle of late amputation after well-defined lines of demarcation have formed in the cases due to exposure to low temperatures is thoroughly endorsed. Separation at the site of the line of demarcation, leaving the stump open, is still the method of choice. Frequently amputations done in such a manner, especially about the feet, heal so well that further surgical revision is unnecessary. Where persistent tenderness of the skin and soft tissues is present at the amputation site in such cases, surgery for revision of the stump consists of reamputation at a higher level. Such soft tissue pain and tenderness tend to persist indefinitely in some of these cases and should, therefore, be removed when present, especially in the stumps which will have some end bearing.

The fitting of the Chopart and Lisfranc amputations apparently continues to be a problem. Amputations of this type through the mid-foot region should be treated primarily with the idea of preventing equinus and varus deformity. Also the tendinous attachments should be preserved as well as possible to prevent these deformities. In many cases they can be successfully fitted with a prosthesis so that function is as good as amputation at any higher level. This is especially true with bilateral Chopart and Lisfranc amputations, and in amputations in children. Amputations in the mid-foot regions, especially in cases where there is marked fixed equinus of

the foot stump and extensive scar at the end of the stump, are usually better off with a Syme amputation.

It is of continued interest to know that the Syme amputation which we repopularized and restandardized in World War II continues to be the best amputation in the lower extremity. The two-stage procedure for the Syme amputation in infected cases and in cases where the skin over the posterior aspect of the heel has been lost is of especial interest, and apparently is of great value in many cases, particularly in patients who have been exposed to low temperatures.

The open amputation, it is of interest to note, continues to be the method of choice in the great majority of all war injuries and in infected cases. The aftercare of this amputation is of the utmost importance. When properly carried out unquestionably it will continue for a long time to come to give the best results in cases of the type under discussion here today.

It is interesting to see that Colonel Spittler has tried the long stump below the knee and like all others who have had this experience, he too has given it up for the shorter stump five and a half to six inches below the knee.

The technic of amputation below the knee which has been presented will, of course, give satisfactory results in the best hands, but insofar as we could determine in a series of cases which were amputated in this manner during World War II, the results were no better than in the cases done by the simpler method and the technic is more difficult for the average surgeon.

Disarticulations of the knee are of especial interest. Amputation at this level was largely abandoned in this country many years ago, mainly due to the objections of the limb fitters. During World War II, we had occasion to do approximately thirty amputations through the knee joint and to fit them and to follow them for some time. All of the patients who ended up with a painless stump end capable of full weight bearing on the condyles of the femur were so well satisfied that we were encouraged to continue using amputation at this level in preference to any amputation at a higher level when possible. In performing disarticulation of the knee, it is important to make as long and as wide an anterior flap as possible, and to detach the hamstring muscles separately and reattach them to the patellar tendon at the intracondylar notch. In cases where more length is needed for the anterior flap, resection of the patella definitely lengthens the anterior skin flap. In cases where that was not needed, we left the patella in without doing anything to it, and the results were apparently the same whether the patella was removed or left in place. We did not fix the patella to the femoral condyles as has been advocated by Dr. Perry Rogers, and we saw no reason to do so in the cases we fitted and followed for a comparatively short period of time.

Colonel Spittler has not had time in a presentation of this length to cover the whole subject of fitting and rehabilitation of the amputee and that is not the purpose of his presentation. The final results, however, of complete rehabilitation of the amputee including limb fitting and training in the use of the prosthesis are in direct proportion to the meticulous care with which the surgery of the amputation is done and the aftercare of the patient is carried out.

Dr. Milton S. Thompson, Fort Sam Houston, Tex.—One of the simple truths that seems obvious is the advice to wait for complete healing before revising a stump. Painful stumps, tender scars, neuromata, and phantom pain are more frequent when healing is slow.

It is interesting that a long posterior flap is being recommended. This is not new. Hey of Leeds described it in 1803, Robert Liston in 1837, and the method was used by the British Army surgeons during the wars of the Nineteenth Century. Dr. Ghormley has pointed out that, particularly in vascular disorders, if anything is going to slough in a BK stump, it is the anterior flap.

The fitting of prostheses to knee disarticulations is of interest and I note that Dr. Alldredge speaks favorably of these stumps in the instructional course lectures of the American Academy of Orthopedic Surgeons on the basis of his having fitted about 30 successfully. Most authors decry this stump as being one which drains profusely, heals poorly, and always requires revision. We have had no experience with fitting of prostheses to knee disarticulations.

I have been unable to find any mention in the literature of the two-stage Syme. This appears to me to be a great contribution and I should like to ask Colonel Spittler if the method is original.

I should like to make a plea for the abandonment of the term "guillotine" as applied to an amputation. As the previous speaker pointed out, in the true guillotine all layers are cut at the same level giving a stump with bone and muscle protruding far beyond the skin. The method fell into disrepute 200 years ago and is never employed by experienced surgeons. Pettit in 1718 described the open circular type of amputation that is in general favor today, that of letting each layer retract before the next is cut.

A sufficiently descriptive and less misleading term is "open amputation."

Dr. Spittler (closing).—I was particularly grateful to get Dr. Alldredge's concurrence on the use of the open amputation, the Syme stump and the knee disarticulation, as these amputations continue to produce very satisfactory results.

A knowledge of available prostheses is always essential to good amputation surgery; however, it should be a basic principle that the artificial limb should be fitted to any good stump and not that the stump be made to fit a certain prosthesis.

I realize, as Dr. Thompson brought out, that the posterior flap was not new, as many innovations in closure are necessary for traumatic amputations and I felt certain that others had advocated it after seeing the good results of posterior flap closures in below knee stumps. I wish to reemphasize caution in attempting them with insufficient length of skin. The two-stage Syme was initiated at Walter Reed Army Hospital by Dr. Hulnick for cases with extensive osteomyelitis of the tarsal bones. Its success led us to continue and extend its use.

As long as surgeons understand the principles of an open amputation the terminology is not too important.

A CONSIDERATION OF CARDIAC HYPERTROPHY IN SICKLE CELL ANEMIA*

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and
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It would seem that the question of the effect of anemia upon the heart would have been answered by now; however, conflicting opinions persist. Six standard textbooks in pathology discuss the problem as follows: Bell[1] says, "With long-standing anemia the heart becomes diffusely enlarged. The hypertrophy is caused by the greater minute volume output." Moore[2] says that in sickle cell anemia "the heart is dilated, frequently enlarged and pale" and in pernicious anemia "the heart is dilated and hypertrophied, weighing from 400 to 600 grams." Anderson[3] points out that the heart is dilated in pernicious anemia and does not refer to it in sickle cell anemia. Karsner,[4] Boyd,[5] and Dible and Davie[6] do not mention cardiac hypertrophy in anemia.

Clinicians apparently are as undecided as to the status of the heart in anemia as pathologists. White[7] says that the heart is hypertrophied in both pernicious and sickle cell anemia; however, anemia is a rare cause of cardiac hypertrophy. Wintrobe[8] does not refer to cardiac hypertrophy in anemia but he does say that the heart is dilated and flabby in pernicious anemia. Nelson[9] and Cecil[10] do not mention the heart in sickle cell anemia and the latter does not refer to cardiac hypertrophy in pernicious anemia. Fowler[11] does not mention hypertrophy of the heart in sickle cell anemia but says that the heart in pernicious anemia is dilated, pale and flabby, and shows degeneration.

In the literature, also, there are conflicting opinions relative to the occurrence of cardiac hypertrophy in anemia. In 1926, Evans[12] in his book on pernicious anemia says, "The heart muscle is pale and shows the streaking of fatty degeneration. Occasionally some slight dilatation may be demonstrated." Cabot and Richardson,[13] in 1919, observed cardiac hypertrophy in cases of pernicious anemia. Harold J. Stewart *et alii*[14] found, "Radiologically the heart was either moderately enlarged or at the upper limits of normal in three of five patients with pernicious anemia." One of these patients had had symptoms of a severe anemia for six years. However, the heart was considered to be normal in size at the end of this period.

In sickle cell anemia, Sternberg[15] noted that the heart was frequently hypertrophied; however, it was of moderate degree and confined to the left side. The heart was of normal size in three of the five cases he reported.[15] Graham and McCarty[16] did not mention any enlargement of the heart in their paper on sickle cell anemia published in 1926. Diggs and Ching[17] noted that: "Clinically, organic heart disease is often suspected, but at autopsy there are no constant cardiac changes except those explainable on the basis of anemia. The heart is moderately enlarged, the myocardium pale and flabby." Diggs does not specify whether this cardiac enlargement was the result of either hypertrophy or dilatation. Hughes *et alii*[18] did not note any cardiac hypertrophy in a case of sickle cell anemia in a child six years of age who had the disease for four and one-half years. Smith[19] noted edema of the cardiac muscle in his three cases of sickle cell anemia.

Winsor and Burch,[20] in 1945, studied the heart both clinically and at autopsy in nine cases of sickle cell anemia. No attempt was made to correlate the weight of the heart with either the body weight or the height of the individual case. Since the latter data are not included in their article, we are unable to make such a correlation at this time; however, the weight in some of their cases would appear to be abnormally high. The heart from a case in a seventeen-year old girl weighed 440 grams. In a second case from a female child ten years of age the heart weighed 225 grams. Winsor and Burch[20] concluded from their study that, "Cardiac enlargement was almost universal in these cases as ascertained fluoroscopically, roentgenographically and at autopsy." We are unable, however, to determine how these authors used the term "cardiac enlargement."

Pratt-Thomas and Switzer,[21] in 1949, reported ten cases of sicklemia studied at au-

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*We wish to acknowledge our appreciation for the assistance rendered in this statistical study by Dr. J. Allen Scott.

topsy. The heart was hypertrophied in two of these. One, Case 5, had a hypertension of 206/110 mm. Hg. and a moderate cardiac hypertrophy.

The second, *Case 9*, was a forty-four year old man who was followed for twenty years. When first seen he had chronic ulcers on the right leg. Eight years later the Wassermann reaction was four plus and the heart was not enlarged. The following year he was admitted to the hospital with myocardial failure. The heart was enlarged. There was a systolic murmur. Five years later he became dyspneic and edematous. The heart was still enlarged, a systolic murmur was present at the apex and a diastolic murmur was heard over the aortic area. The systolic pressure at this time was 140 and the diastolic was not recorded. Six years later the patient was hospitalized for the last time with signs of heart failure. The erythrocyte count was 4.79 million per cubic millimeter and the hemoglobin was 12.5 grams per 100 cc. At autopsy the heart weighed 900 grams. There was a slight thickening of the mitral valve cusps but no other cause for the cardiac enlargement could be found.

The authors suggested that it seems reasonable to suppose that the marked sicklemia may have increased the myocardial anoxia, as well as augmenting the cardiac strain, because of the increased viscosity of the blood.

It is of interest to note, however, that no reference was made to the presence of anemia during the twenty years this patient was followed. Would one be justified in expecting clinical manifestations of anemia in a patient with cardiac hypertrophy when anemia is the etiology for the hypertrophy?

Reference is sometimes made to cardiac hypertrophy in Cooley's anemia. However, the paper by Nemet and Gross,[22] frequently referred to in the literature, cites only one case and does not refer to any other cases of cardiac hypertrophy previously reported. They also say, "The development of cardiac hypertrophy is a rare occurrence in severe anemia."

Porter[23] studied by the use of teleoroentgenograms the heart in eighteen patients with an anemia secondary to hookworm infestation. He concluded that cardiac enlargement occurred.

"There was found an increase in heart size in 100 per cent of the patients. The data indicate that the change in heart size was, in a few patients, due to reducible dilatation, in others to dilatation and hypertrophy, and in a third group to definite hypertrophy unassociated with reducible dilatation."

The technic that Porter used to arrive at these conclusions apparently from his discussion is not uniformly accepted, since he says that

"The cardiothoracic ratio could not be used with customary confidence because of the increase of the transverse thoracic diameter existing in these subjects."

Only one of the eighteen cases was studied at autopsy. This was a male forty-five years of age who had a blood pressure of 140/112 and 146/118 mm. of mercury on two different days. The heart weighed 630 grams.

"In the deeper portions of the media (of the aorta) there were several small, endothelial-lined vessels surrounded by a small group of round cells and a few polymorphs. In the adventitia there was a large area of diffuse round cell infiltration."

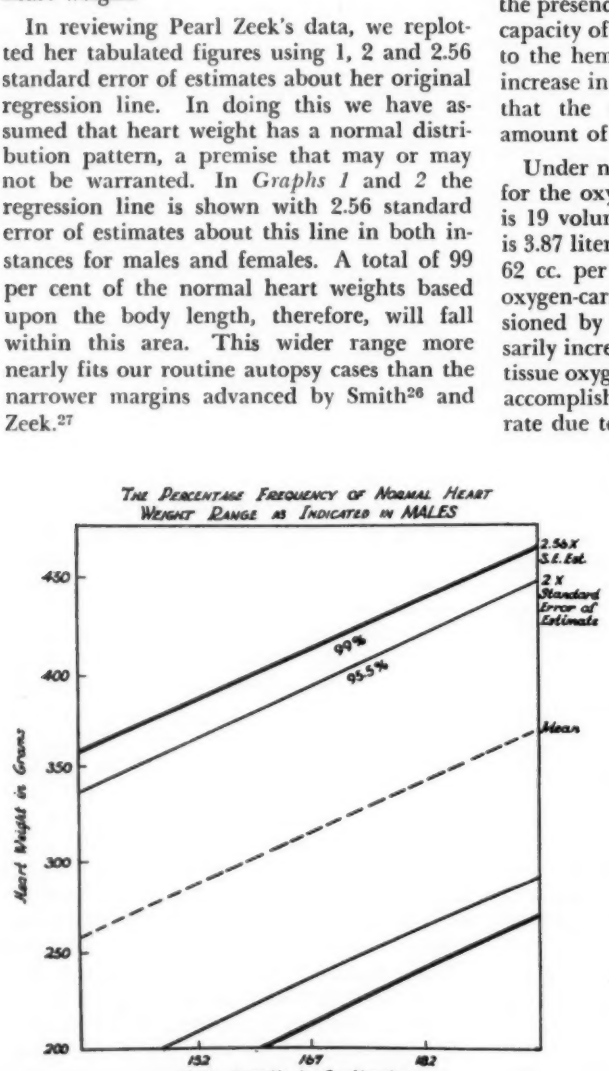
There is no record of a Wassermann test and the viscera were not studied for arteriolosclerosis. If cardiac hypertrophy is a characteristic feature of Cooley's anemia and the anemia accompanying hookworm disease, then more cases should be studied at autopsy to support the observation.

Many of us have observed cases of cardiac hypertrophy without an etiology. Those occurring during infancy and early childhood are classified as idiopathic. Should a child survive to adult life with idiopathic cardiac hypertrophy and become infested with hookworm, how would we classify the enlarged heart? Cabot[24] was unable to determine the etiology of the cardiac hypertrophy in 154 (23 per cent) of 662 cases. Levy and von Glahn[25] reported ten cases in which the heart was hypertrophied at autopsy without an obvious cause. When asked if anemia could be the etiology of the hypertrophy, Levy replied, "That . . . was conspicuous by its absence."

The first problem encountered is our lack of knowledge of the weight of a normal heart. Several investigators have attempted to establish the weight of the normal heart. The most satisfactory results apparently have been obtained by expressing the weight of the heart relative to body weight. The cardiac weights as given by Smith[26] in 1928 have been widely used. However, they appear to be lower than those noted by us in the routine study of autopsy material. In evaluating Smith's data based upon 1,000 cases, a large percentage of the heart weights was taken from patients with carcinoma. One wonders if the lower weights might be the result of atrophy of varying degrees. The body weights used in the study were either weights on admission or a normal stated weight given by the patient.

Zeek,[27] in 1942, made an extensive statistical study of the weight of the heart with reference to the height of the individual using 926 autopsies. This method of calculation eliminated the variability of the body weight and substituted the more stable body length for the correlation. No deforming lesions or diseases were included in her survey and she found no difference in the white and Negro heart weight.

In reviewing Pearl Zeek's data, we replotted her tabulated figures using 1, 2 and 2.56 standard error of estimates about her original regression line. In doing this we have assumed that heart weight has a normal distribution pattern, a premise that may or may not be warranted. In *Graphs 1* and *2* the regression line is shown with 2.56 standard error of estimates about this line in both instances for males and females. A total of 99 per cent of the normal heart weights based upon the body length, therefore, will fall within this area. This wider range more nearly fits our routine autopsy cases than the narrower margins advanced by Smith[26] and Zeek.[27]



GRAPH 1

The normal heart weight range expressed in percentage frequency based upon Zeek's data for males.

PATHOLOGICAL CARDIAC PHYSIOLOGY

Alterations interfering with the normal supply of oxygen to tissues are counteracted by the body in several ways. These are dependent upon the oxygen-carrying capacity of the blood, which depends upon the hemoglobin concentration; the amount of oxygen removed from the blood by the tissues; and finally the minute output of the heart. With the presence of an anemia, the oxygen-carrying capacity of the blood is reduced in proportion to the hemoglobin reduction and there is an increase in the cardiac output. It is also stated that the tissues may extract a maximum amount of oxygen from the blood.[14]

Under normal conditions the average value for the oxygen-carrying capacity of the blood is 19 volumes per 100 cc., the cardiac output is 3.87 liters per minute and the stroke volume 62 cc. per systole.[28] With a decrease in the oxygen-carrying capacity of the blood occasioned by an anemia, the heart must necessarily increase its output to maintain a normal tissue oxygen tension. The first mechanism to accomplish this task is an increase in the heart rate due to the activity of the Bainbridge reflex. For many cases of minor degrees of anemia this physiologic process is sufficient to support the tissue needs. With the occurrence of a more severe anemia, the ventricles dilate in order to accommodate more blood, and this increase in the length of the myocardial fiber produces an increase in the stroke volume of the heart in accordance with Starling's law. Both of these compensatory mechanisms are physiological. If tissue anoxia is still present, the heart may further dilate with a concomitant increase in myocardial contractility. It is stated by Sodeman[29] that this pathological dilatation may lead to myocardial hypertrophy if the increased work load upon the heart is sustained for a sufficient length of time.

Numerous detailed studies concerning the cardiac output in various types of anemias have been made. In 1934, Starr and his associates[38] observed:

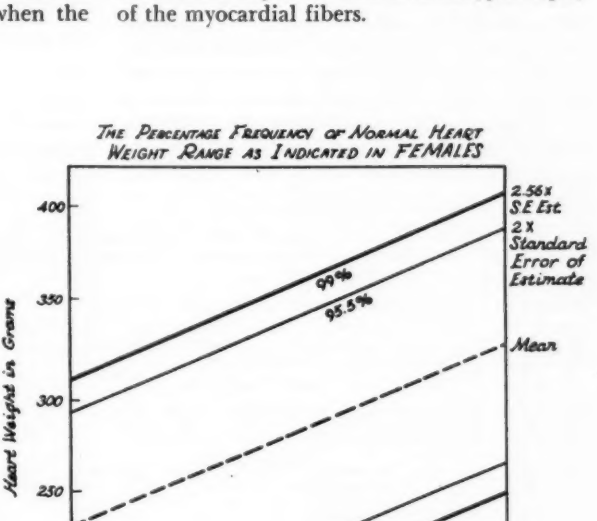
"The average cardiac output of thirty-one healthy persons is 2.9 liters per minute per 100 pounds, that of eight cases of anemia 3.2 liters; should the difference be significant or not?"

In evaluating their cases of anemia, we found that of seven cases they presented, two were omitted because of doubt from clinical criteria concerning the conditions of their hearts; three patients had a hemoglobin of over 58 per cent; and the remaining two patients had hemoglobin values of 37 and 41 per cent. The cardiac output in one patient was slightly elevated and in another, with 37 per cent hemoglobin, the cardiac output was 6.5 liters per minute. Starr and associates, however, concluded that patients with anemia gave cardiac output value within normal limits.

The cardiac output in patients with pernicious anemia was investigated thoroughly in 1937 by Harold J. Stewart *et alii*.[14] Of five patients studied they found in each a moderate elevation of the cardiac output with a reversion of the cardiac output toward a normal level with the correction of the anemia. Grollman[28] cites Dantrebande as finding the cardiac output tripled when the hemoglobin was reduced to 25 per cent and quadrupled at 20 per cent. Sharpey-Schafer[31] confirms these observations by finding high cardiac outputs in all of seven anemic patients examined; the results varied from 6.9 to 11.8 liters per minute with hemoglobin concentrations of 38 to 19 per cent, respectively. This investigator likewise has shown that hemoglobin concentrations above 60-70 per cent do not provoke a significant increase in the cardiac output. This view is also supported by the work of Starr and his associates.[30]

The cardiac output immediately reverts toward a normal level following the correction of the anemia. This has been well demonstrated by cardiac catheterization with serial determinations while transfusing anemia patients.[31] This fact also is supported clinically by the correction of a hemorrhagic anemia associated with a reversion of the heart size to normal radiologically, following the presence of a markedly dilated heart seen during the anemia state. This can only mean that the heart was dilated. This patient had bleeding from the uterus over a period of six months, and following hysterectomy and correction of the anemia the heart size returned to normal.

It is obvious that in order for cardiac dilatation and, subsequently, hypertrophy to occur based upon the preceding facts, the increase in the cardiac output would have to be maintained over a prolonged period of time. Not only would the anemia have to be long-standing, but the degree of severity would naturally enter into the picture, so that the ultimate cardiac hypertrophy would depend upon a severity-time ratio. If the physiologic mechanisms were sufficient to combat the tissue anoxia brought about by anemia, hypertrophy might never result. This fact is surprisingly true in many cases and only in those of prolonged duration and severe degree should one expect to find actual hypertrophy of the myocardial fibers.



GRAPH 2

The normal heart weight range expressed in percentage frequency based upon Zeek's data for females.

Two excellent examples of anemias existing for prolonged periods of time are pernicious and sickle cell anemia. Upon a close survey of the literature one is surprised by the few cases of hypertrophy of the heart in uncomplicated cases. Many authors fail to mention the presence or absence of renal, vascular or valvular abnormalities in the evaluation of the heart in anemia. Others include cases without anemia[21] or cases of presumed sickle cell anemia in elderly patients or in members of the white race. A more critical analysis of the literature would indicate that cardiac hypertrophy occurs with anemia in only a few cases.

CASE STUDIES

A summary of seven cases of sickle cell anemia proven by autopsy is given in *Table 1*.

DISCUSSION

In evaluating the heart in sickle cell anemia several problems of interpretation arise. These resolve about the following: first, our inability satisfactorily to determine the normal range of the heart weight, particularly in these asthenic individuals; secondly, many authors readily attribute cardiac hypertrophy to an anemia without first critically excluding unrelated factors capable of producing cardiac hypertrophy; and, thirdly, from a review of the literature there is no high degree of consistency with regard to the cardiac findings in anemia.

With regard to the first problem, we are dealing with asthenic patients who characteristically present hearts of greater than the usual mean values for normal heart weights.[26] We have several studies giving the normal weights of hearts; however, we have little knowledge concerning the range of heart weights. We see cases in which the heart is heavier than that usually recorded and the patient has neither clinical nor pathological findings to account for the hypertrophy, not even anemia. It would seem that our *Graphs 1* and *2* give a satisfactory range for heart weights based upon Zeek's work.[27]

The second factor that has contributed to the problem of determining the effect of anemia on the heart is the failure of some authors to appreciate the fact that a stimulus unrelated to the etiology of the anemia may be responsible for the cardiac hypertrophy. The case reported by Porter[23] of cardiac hypertrophy in an anemia secondary to hookworm infestation illustrates this difficulty. The heart weighed 630 grams and the blood pressure on two different days was 140/112 and 146/118 mm. of mercury; however, the kidneys were not studied for arteriolosclerosis. Hypertension as an etiology of the cardiac hypertrophy, in our opinion, certainly should have been ruled out. Many other similar cases are readily found in the literature. An additional incongruity found in the literature is the statement of cardiac

SUMMARY OF CASES OF SICKLE CELL ANEMIA
WITH SPECIAL REFERENCE TO THE HEART

Case No.	Age	Sex	Duration of Anemia	Lowest RBC Reading	Highest BP Reading	Pathological Diagnosis	Weight of Heart in Grams	Estimated Maximum Weight of Heart*
1	44	M	....	1.5	128/66	Sickle cell anemia	580	420
2	27	M	9 years	1.74	148/78	Cellulitis from ruptured urethra Sickle cell anemia	450	440
3	33	F	Since childhood	1.76	266/120	Arteriolosclerosis Sickle cell anemia	550	? Hypertension
4	8	F	7½ years	1.8	110/74	Sickle cell anemia	100	110
5	18	F	3 months	1.42	120/65	Sickle cell anemia	360	376
6	17	F	....	....	174/114	Pregnancy Sickle cell anemia	300	328
7	13	M	7 years	1.5	160/120	Glomerular nephritis Sickle cell anemia	250	? Hypertension

*Based upon data in *Graphs 1* and *2* and the studies by Coppoletta and Wolbach[23]

TABLE 1

enlargement, when used in a pathological sense, without the differentiation as to dilatation alone, hypertrophy alone, or hypertrophy and dilatation. Many authors say that at autopsy the heart is enlarged but fail to specify the actual type of enlargement. This leads to confusion with respect to interpretation. Enlargement should be reserved for clinical terminology and not pathological.

The third problem of interpretation centers about the fact that within the literature there is a certain amount of inconsistency with regard to the cardiac findings in anemia. Theoretically the left ventricle should hypertrophy in these cases of severe anemia that persist for long periods; however, there are many reported cases of anemia that survived for several years without evidence of cardiac hypertrophy. The physiological effects of anemia on the heart are the same regardless of the etiology and the duration and severity of the anemia are the significant factors. Many anemic patients of prolonged standing tend to reduce body activity to a minimum and thus may lessen the necessity of a high cardiac output. Therefore, this would suggest that in many instances the heart may not be required to hypertrophy to compensate for the deficiency of tissue oxygen.

We have found cases in our autopsy material which serve to illustrate the numerous problems involved. The presence of complicating factors which in themselves will produce hypertrophy must be excluded from all cases of anemia when evaluating the heart on that basis alone. Certainly cases of hypertension should be eliminated from any such study and in two of our cases this existed. Case 3 had definite evidence of arteriolar sclerosis with hypertension and Case 7 had glomerular lesions consistent with glomerular nephritis.

One of our cases with a diagnosis of active sickle cell anemia for seven and one half years (Case 4) failed to show cardiac hypertrophy. The heart was within the normal value from Wolbach's[33] evaluation. This might be explained by the fact that the patient was closely followed and given multiple transfusions. In this manner the load upon the heart may have been lessened to such a degree that the heart did not have a hypertrophy for maintaining the normal oxygen load.

Three of our cases (Cases 2, 5 and 6) presented hearts which were definitely at the upper limits of normal. We believe, however, that a critical appraisal of the individual case is necessary prior to determining the presence or absence of hypertrophy in borderline instances. In using our normal heart weight figures based upon Zeek's data[27] regarding body length, we find that all of these cases are at the upper limit of normal. None of these three cases present complicating factors capable of producing hypertrophy alone, and the anemia present was variable, being either of short duration or relatively high hemoglobin concentration. In Case 2 the heart weighed 450 grams and the patient measured 180 centimeters which if using the 2.56 standard error of estimates graph would be 440 grams. Case 5 had a heart that weighed 360 grams and the 2.56 standard error of estimates chart would result in an upper limit weight of 376 grams. In our Case 6 the heart weighed 300 grams, whereas our chart would result in a figure of 328 grams for the maximum weight at 2.56 standard deviations from Zeek's regression line.[27]

Finally, this leaves us with one case (Case 1) in which the heart is definitely hypertrophied. The heart weighed 580 grams at the time of autopsy, and using our 2.56 standard error of estimates figures the maximum weight would be 420 grams. No vascular, valvular or renal abnormalities were demonstrated to account for the presence of a hypertrophy of the heart. Sections of the heart fail to reveal the presence of any edema, which would tend to exclude beriberi, a factor that has not, in many instances in the literature, been ruled out. We are left then with the probability that the hypertrophy was the result of the anemia.

It seems both from a review of the literature and from our study that it will be necessary to have additional data to determine the frequency with which cardiac hypertrophy results from anemia.

SUMMARY

We have reported seven cases of sickle cell anemia. In this group we have observed that four of the seven cases had what we considered to be normal heart weights, two had hypertrophy of the heart based upon complicating features, and one case had hypertrophy without a demonstrable etiology other than the possibility of the anemia.

We have reviewed the literature on anemia and find that there are conflicting opinions relative to cardiac hypertrophy based upon anemia. It is our opinion that additional pathological studies should be made in order to determine the frequency with which hypertrophy results from anemia.

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DISCUSSION *(Abstract)*

Dr. R. H. Rigdon, Galveston, Tex.—Dr. Stembridge and I had thought that we could settle this problem of whether or not cardiac hypertrophy occurs in anemia once and for all when we started this study a couple of years ago. However, after completing this paper, we must conclude that in our opinion there is insufficient data to prove conclusively that cardiac hypertrophy does occur. There is physiologic evidence to suggest that hypertrophy should occur in anemia, but few cases apparently have been reported at autopsy to support this opinion. Only one in our group of seven cases with sickle cell anemia had a definite cardiac hypertrophy that could not be attributed to some other cause than anemia.

The graphs that show the range of cardiac weights based upon the height of the patient may be of value in determining whether a heart is normal in weight. I think this may be more accurate than basing the heart weight on the body weight ratio.

THE PREVENTION OF ERYTHROBLASTOSIS FETALIS BY THE USE OF Rh HAPTEN*

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Houston, Texas

In 1940 the Rhesus blood factor was discovered by Landsteiner and Wiener.[1] This medical discovery was rapidly followed by a full realization of the Rh factor's implications in the production of erythroblastosis fetalis et neonatorum. The obstetrician's responsibilities in attempting to prevent fatalities from this disease were obvious. He immediately began his search for some drug, chemical or serum which would protect the fetus from the Rh antibodies of its iso-immunized Rh negative mother (host).

From the outset, it must be admitted that the erythroblastotic possibilities do not involve a high percentage of the obstetrical population, even among Caucasians, in whom approximately 15 per cent are Rh negative. This figure is an exaggeration of the problem since in 2¼ per cent of the Caucasian marriages, both mates are Rh negative and can therefore produce only Rh negative offspring. Those marriages in which the husband is Rh negative and the wife Rh positive are, of course, not considered since the pathogenesis

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of erythroblastosis from the Rh factor requires that the wife and mother be Rh negative and the husband and father Rh positive. This leaves only 12¾ per cent of the married couples among Caucasians for serious consideration of the erythroblastotic possibilities. To be sure, roughly one-half of these Rh positive husbands or fathers are hetero- and not homozygous Rh positive, and theoretically one-half of their offspring will be Rh negative and therefore non-erythroblastotic, but the problem can not be so reduced since there is as yet no method of ascertaining the fetal Rh factor, although the hetero- or homozygosity of all Rh positive husbands of Rh negative wives is being routinely determined. The problem can be further reduced since theoretically the first Rh positive child of the Rh negative woman not previously isoimmunized through the exhibition of Rh positive blood will not be erythroblastotic. From these figures, we can statistically say that a maximum of 5 per cent of the Caucasian offspring are candidates for erythroblastosis. Despite the relatively small size of this obstetrical problem, it is an important one for, in some instances, it has produced one-child families and in others, has aided in production of childless couples. Anything which can be done to avoid the pathos in these homes is tremendously appreciated and every ounce of effort is amply rewarded by the elation which it brings the parents and the satisfaction derived by the workers in this experimental field.

As previously indicated, since shortly after the discovery of the Rhesus blood factor, investigators have concerned themselves with trying to discover a prophylaxis against erythroblastosis fetalis. Various drugs from aspirin to ACTH and cortisone and blood plasma have been used. The most vulnerable point of attack can be seen in *Figure 1* which graphically depicts the pathogenesis of this disease.

Since the point and method of entrance of the Rh positive fetal red blood cells into the maternal circulation are the weakest known link in the production of the disease, it can not be a logical point to attack. Certain drugs, notably salicylates, have been used without success in preventing the development of anti-Rh agglutinins. This is a logical approach and work in this field may some day bear fruit. Another logical site to approach is the Rh antibodies with some drug, chemical or serum, which can be administered to the mother in such dosage and frequency as to neutralize, combine with, or otherwise inactivate these antibodies as they are formed and thus prevent their return to the fetal circulation, there to produce blood destruction, and so on. Carter[2] believed she had produced the substance which could do the latter and named it Rh hapten. Her small series produced encouragement. Goldsmith,[3] with modifications of her technic, has reported even more promising results. Our entrance into this field began two and a half years ago and was modeled after Goldsmith's approach. We have not yet completed treatment of enough cases from which to draw lasting conclusions. We believe that much has been learned from our earlier unsuccessfully treated cases and are hopefully anticipating improvements from refinements in therapy.

The details of preparation of Rh hapten will not here be outlined. The extraction is one of water, alcohol and ether from outdated Rh positive blood obtained from the blood banks of our local hospitals. The product is a cholesterol-like lipid with little or no antigenic properties. It varies in color from white to light brown and is soluble in only ether or high concentrations of alcohol. The yield is very low, amounting to only 400 to

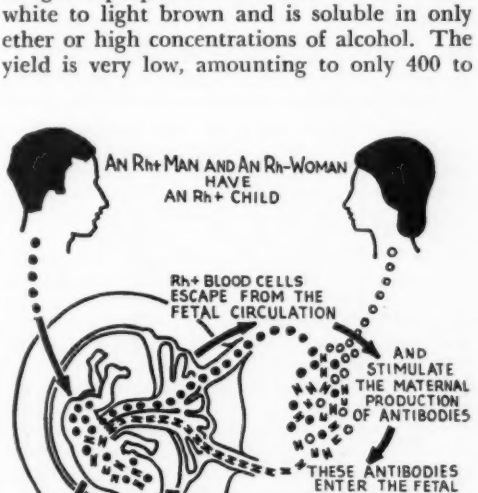
AN Rh+ MAN AND AN Rh- WOMAN HAVE AN Rh+ CHILD
Rh+ BLOOD CELLS ESCAPE FROM THE FETAL CIRCULATION
AND STIMULATE THE MATERNAL PRODUCTION OF ANTIBODIES
THESE ANTIBODIES ENTER THE FETAL CIRCULATION
AND CAUSE BLOOD DESTRUCTION
PRODUCING HEMOLYTIC DISEASE
• Rh+ blood
o Rh- blood
x Rh antibodies

FIG. 1

Pathogenesis of erythroblastosis.

500 mg. per unit (pint) of whole blood. This comprises an average dose. It is put up in vials containing 2 cc. of absolute alcohol and stored in a refrigerator although it is apparently thermostabile. At these low temperatures, some of the hapten usually precipitates out of the solution but can readily be brought back into solution by warming to room or to body temperature. It is administered intramuscularly into the gluteal area. The contents of the vial are drawn into a sterile syringe after which an equal amount of 2 per cent procaine, to reduce tissue discomfort, is drawn into the syringe and the solutions are mixed. A flocculated solution results because of hapten insolubility in water and in low concentrations of alcohol, but the entire contents are injected and rarely produce local irritation, never general reaction. Size of dosage and frequency of administration are not yet known and have been dictated by the response shown in antibody titer. Currently, doses of 400 mg. are given weekly and titers obtained simultaneously.

The following case records represent types of cases in our series. They point out some of the difficulties encountered in the management of treatment of these cases.

The first patient treated was (N. B.) a normal, 29-year-old, registered, white, clinic, para 6-1-0-2, who was Rh negative and belonged to blood type O with no previous transfusions. Her husband was Rh positive, presumed heterozygous. Nothing is known of the Rh status of the offspring except for the two which are living. The first pregnancy ended in premature delivery in 1936 with the child weighing three pounds and succumbing after nine days. This child is presumed to have been lost because of prematurity and to have been Rh positive. A year later, she delivered a term, Rh negative child which survived. In 1939, in 1941 and in 1943, she delivered spontaneously at term, small children which lived only six hours to four days and nothing else is known of them. Her sixth child in 1946 was born alive, was jaundiced and Rh positive but was raised after a single transfusion. In 1948, she had a death *in utero* at the onset of the period of viability and after delivering this macerated fetus, she was elsewhere subjected to early puerperal tubal sterilization. With her final pregnancy, she registered on the clinic service at the end of the first trimester when her blood showed iso-agglutinins. She was hospitalized for study and possible interruption of pregnancy with resterilization. This was when our Rh laboratory was being conceived, so she was persuaded to carry the pregnancy and Rh hapten therapy was then begun at twenty-six and a half weeks gestation. With only 200 mg. of hapten given weekly, as seen in *Figure 2,* there was some reduction in anti-Rh titer. During the eighth lunar month, the patient claimed cessation of fetal movements but heart tones were clearly audible. However, about three weeks later, she went into spontaneous labor (thirty-three weeks) with intrapartum fetal death and difficulty in delivering the protuberant abdomen, the child of which, at autopsy showed marked anarsarca and ascites, petechiae in the skin and erythroblastotic splenomegaly and hepatomegaly of the hydrops variety. Cord blood contained no iso-agglutinins and was type A, as well as Rh positive (CDE/c (de?).

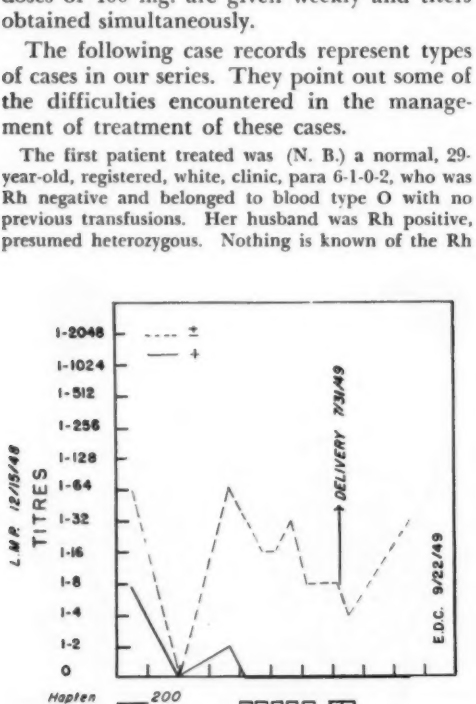

FIG. 2
N. B., a 29-year-old, white, para 6-1-0-2.

In summarizing this case, it must be admitted that therapy was begun too late and was insufficient in amount. In all probability, fetal damage by the twenty-sixth week was already so far advanced that no amount of therapy could have salvaged this Rh positive child. It might also be said here that others have apparently shown that Rh hapten therapy can not decrease the severity of the already existing erythroblastosis fetalis but, by virtue of neutralizing the maternal antibodies, can prevent these from reaching the fetal circulation and therefore lessen the chances of advancement in the fetal disease.

In this connection, it should be emphasized that the Rh hapten is believed to neutralize or destroy Rh antibodies through combining with them and this alone is its presumed *modus operandi.* This neutralizing effect is demonstrable in both *in vitro* and *in vivo* preparations.

The case shown by *Figure 3* (Mrs. M. S.) is that of a private, white, normal, 28-year-old, para 2-0-1-1, who was Rh negative, belonged to blood type B, and who is assumed not to have been previously transfused. Her

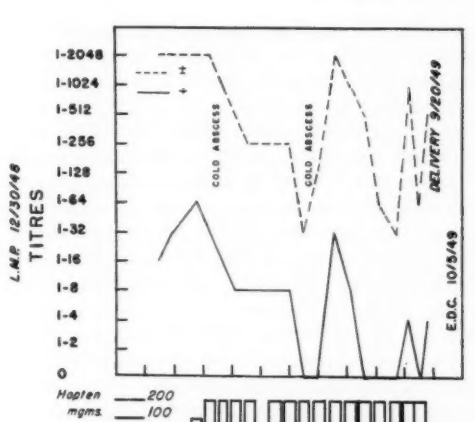

FIG. 3

M. S., a 28-year-old, white, para 2-0-1-1.

first child, eight years old, was normal and heterozygous Rh positive (CDe/cde). The second child was delivered four years later and all that is known of it is that death occurred on the third day. A year previously, she had an abortion of unspecified gestational period. Her husband was homozygous Rh positive (CDe/C (D?)e). During her fourth pregnancy, hapten therapy was begun at twenty-one and a half weeks, which was, up to that time, the earliest period for beginning this therapy in our series. The rather striking response suggested good control of the fetal state until after the thirtieth week when therapy was not, for unknown reasons, continued at weekly intervals. This was associated with loss of control of the antibody titer in spite of moderate increase in dosage. Our current ideas would have suggested even greater increases in dosage as well as decrease in interval of administration.

Labor began spontaneously 10 days after her estimated date of confinement. Delivery was by low forceps extraction after an uneventful labor. The child appeared to be normal, required no resuscitation and weighed 7 lbs., 12 oz. She was promptly seen by pediatricians who found her to be normal to gross examination except for a little blueness of the hands and feet. The liver edge was palpable but the spleen could not be felt. The recommendation was to do nothing because the child was in good condition. At the hospital of delivery, the child was reported as Rh positive with, in the first blood count, 20 grams (120 per cent) hemoglobin, 4.72 million red cells, 22,800 white cells, and 13 erythroblasts per 100 white cells. Two other blood counts were obtained on the first day of life and the only significant change noted was a reduction in erythroblasts, down to 2 per 100 white cells. When 30 hours old, the child presented jaundice and 12 hours later, showed increasing clinical jaundice with the spleen now palpable. Blood counts continued within the same levels as shown on the first day of life and no special therapy was given. On the third day, jaundice was thought to be even more pronounced and Rh hapten in dosages of 300 mg. was given at ages 57, 59 and 63 hours respectively. At the latter time, considerable pharyngeal mucus was noted; there had been cyanotic attacks explained on the basis of the respiratory mucus; no other changes were discovered; the child was alert and no neurological changes had ever been discovered. Shortly thereafter, more marked cyanosis appeared while the child was receiving hypodermoclysis and death followed within three hours. Note that blood was never given this child, hapten was delayed until she was 58 hours old and, aside from terminal heroic therapy, nothing particular was done except for several clyses. Autopsy revealed icterus gravis, especially most marked kernicterus.

Review of this case history strongly suggests that this infant should have been salvaged; that it need not necessarily have been badly damaged neurologically; and that neither obstetrician nor pediatrician did all that could have been done by way of salvage. In the first place, the fetal disease, or at least its possibility, seems to have been gotten well under control but then allowed to have been uncontrolled when it should have been possible to maintain control through increase in dosage and frequency of administration. Furthermore, even though the therapy was inadequate prior to birth, the child was in apparently good condition at delivery and there was no need to sit by and watch the progressive development of icterus gravis, withholding hapten therapy until near the end of life and giving no transfusions.

The next case shown by graph in *Figure 4* presented a puzzling problem. She was Mrs. J. L. D., a normal, private, white, 25-year-old, para 3-0-0-1, Rh negative and of blood type AB, with no previous transfusions. The husband was heterozygous, Rh positive (CDe/cde) and of blood type O. The first child, six years old, is normal and Rh positive. The second pregnancy ended four years previously at term and in delivery of a stillborn macerated child. The third was born a year ago at term. This child showed marked jaundice, had one transfusion, but lived only three days. Both these latter two are said to have been erythroblastotics but there is no immunological data on them. The fourth pregnancy had advanced to the twenty-first week before our laboratory was producing hapten. Therapy was continued without interruption in spite of two known instances of unexplained local reactions which, in the antibody graph, are designated as "cold abscess." It will be seen that after the second one of these, there was sudden and marked increase in the patient's antibody titer. This reaction might be responsible for increased antibody titer but was interpreted as interfering with absorption of hapten and temporary failure to neutralize developing antibodies. The antibody titer was never wiped out in this case and a total of 3100 mg. of hapten was given during the sixteen weeks of therapy. The Rh laboratory was

hopeful of obtaining a newborn not so badly compromised with erythroblastosis that it could not be raised by the usual methods plus hapten therapy. This was, of course, unwarranted enthusiasm and high speculation. Labor was induced by membrane rupture at thirty-eight weeks gestation and terminated by low forceps extraction after an eleven hour labor. This child was normal, weighed six and a half pounds, was Rh negative, and survived without incident.

It was difficult to reconcile this graph to an Rh negative fetus but all rechecks, even after the child was several months old, confirmed the absence of the Rh factor in it. The presence of a considerable number of antibodies associated with an Rh negative fetus is, of course, explained on the basis of a hold-over from iso-immunization through one or more previous pregnancies with Rh positive fetuses. There is ample evidence to show that years may elapse after delivery of an erythroblastotic infant before anti-Rh agglutinins disappear from the maternal blood. However, it is impossible to differentiate hold-over antibodies of a previous pregnancy from those of the current pregnancy. On the other hand, the considerable rise in titer with its persistence in association with an Rh negative fetus can be explained only as an anamnestic reaction (Hektoen phenomenon). It seems to be a well known fact that nonspecific stimuli may cause a reappearance of antibodies that had in the past been produced by a specific antigen and had disappeared from the circulation in the course of time.

Although the Rh anamnestic reactions may not be common (only two cases have appeared in the literature),[4,5] Schneider[6] has estimated recently that the proportion of anamnestic reactions should approach, at its upper limits, one-third of all Rh reactions of pregnancy among Caucasians. Antibody production associated with erythroblastotic fetuses is not detectably different from that associated with an Rh anamnestic reaction. Not long after discovery of the Rh factor, clinical obstetricians learned that it was impossible to predict anything about the erythroblastotic state of the fetus from the antibody titers of the mother or from changes, either rises or falls, in those titers. With increasing appearance of anamnestic reactions, this dictum must be added to in order to indicate that it is not even possible to predict from such titers or from changes in them, whether the fetus is Rh positive or negative. For hapten or any other therapy, it suggests that up to one-third of all previously iso-immunized Caucasian gravidas will be treated unnecessarily.

Since, in most of the cases treated up to this point, we had not been able completely to destroy the Rh antibody titer, it was decided to attempt to do so by administering rapid therapy as soon as the patient came under observation with a positive titer. In order to achieve this end, the patient is hospitalized for a period of 48 hours and given an injection every four hours for a total of 12 injections of hapten. Simultaneously, the usual dose is increased to 400 mg. Moreover, patients previously iso-immunized are not welcome in our current series unless they are presented in the first trimester and we prefer beginning therapy as soon as a presumptive diagnosis of pregnancy can be made. Other workers have indicated a preference for beginning therapy prior to conception.

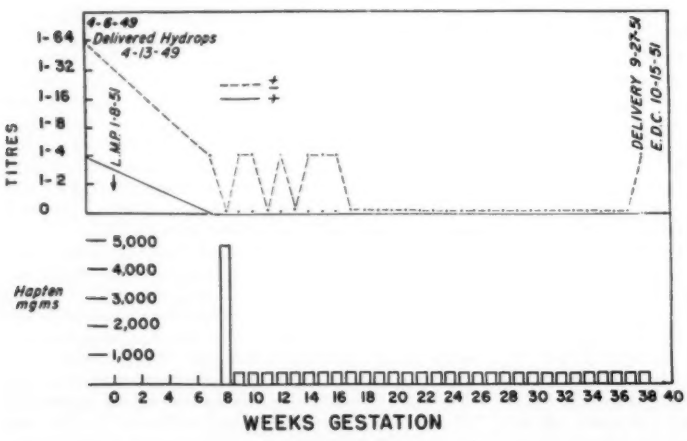

FIG. 4

J. L. D., a 25-year-old, white, para 3-0-0-1.

The last case *(Fig. 5)* represents a patient treated by this latest revision of our regime. She was (H. W.) a normal, 26-year-old, registered, white, private, para 2-0-0-1, who came under observation in the seventh week after the onset of her last menstrual period. At this time, she had a low residual Rh antibody titer. Her blood was found to be Rh negative with blood type A, while her husband's was

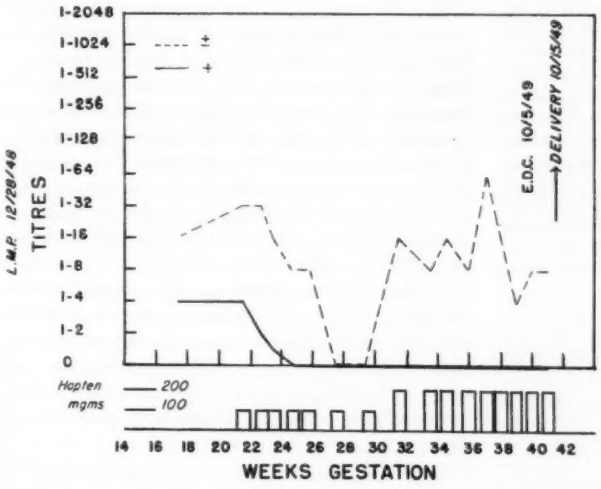

FIG. 5

H. W., a 26-year-old, white, para 2-0-0-1.

while her husband's was heterozygous Rh positive (CDE/cde) and blood type A. Her first pregnancy ended in 1944, at term by cesarean section for unknown indications, in the delivery of a normal, female infant with the same genetic blood types as her father, that is, A and heterozygous Rh positive (CDE/cde). In the early puerperium, this mother was transfused with fresh whole blood from her father who is heterozygous Rh positive (CDE/cde). The second pregnancy ended in 1949 in elective cesarean section delivery of a congenitally deformed and erythroblastotic, typical hydrops variety which lived only a few hours. One week before delivery, our infant Rh laboratory obtained a definitely positive Rh antibody titer on this patient. With the third pregnancy, the current regime of hapten therapy was faithfully carried out, the pregnancy progressing without incident. Labor was induced and delivery again effected by elective cesarean section. This child was a normal, eight pound, one and a half ounce boy, Rh positive (CDE/cde), but non-erythroblastotic.

In summarizing this case, it would seem that the successful production of a non-erythroblastotic Rh positive child would have to be credited to Rh hapten therapy. What adds to our elation over the end results here is that this patient's iso-immunization apparently resulted from transfusion and there has been suggestive evidence that iso-immunization so produced is more permanent, more lethal obstetrically, and responds much less readily to hapten therapy than when produced by prior Rh positive offspring. In any event, here is a clear cut non-erythroblastotic Rh positive child following a previous severely damaged erythroblastotic fetus, an event which can not be expected in the normal course of events, that is, without prophylactic therapy.

In conclusion, we must admit that much trial and error work still confronts us. Size of dose and frequency of its administration for the different types of cases has yet to be worked out. Refinements of assay will almost certainly have to be adopted. For example, it is quite likely that haptens for the specific antibodies to the Rh subgroups, C(Rh′), D(Rh_0), and E(Rh″), will have to be prepared for administration according to the iso-immunization of the individual to such specific sub-groups. We feel encouraged though our results do not equal those already reported by Goldsmith, yet exceed unpublished observations by several others.

CONCLUSIONS

(1) The problems of prophylactic treatment of erythroblastosis fetalis are given. The logical sites of attack in the pathogenesis of the disease are discussed.

(2) Representative case histories of iso-immunized mothers treated with Rh hapten are presented.

(3) Anamnestic reactions are discussed.

(4) Future problems in prophylactic Rh hapten therapy are theorized.

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DISCUSSION *(Abstract)*

Dr. Eugene G. Hamilton, St. Louis, Mo.—Any measure employed in this condition must salvage those babies which, from past experience, we feel certain would have otherwise been lost. The small number of suitable cases any one person may see, together with normal variations of the disease make evaluation of treatment difficult.

In the first case here presented in which an hydropic fetus was delivered at thirty-three weeks, we note a spontaneous drop in titer to zero two weeks prior to hapten administration. It was positive again in dilution of only 1:2 at the time hapten was started. A spontaneous drop in titer toward the end of pregnancy was described by Primrose, Van Drosser and Philpott in 1947. They held out a poor prognosis for the baby

in such cases. We have observed the same thing and it fits well the case presented today. The part played by hapten in reducing the titer is therefore obscure.

The next case in which the baby was inadequately treated after birth is in line with our experience. In the light of our present knowledge, even without hapten administration, but with early exchange transfusion, there is no reason why both of this woman's term pregnancies should not have survived. In the last pregnancy the titer was only 1:32, and then came to zero after small doses of hapten. One cannot state with assurance that hapten produced a baby in better condition than would have occurred without treatment.

Our experience with the anamnestic response is similar to that presented here. We gave 600 mg. weekly starting at the fourteenth week and continuing to term. The titer rose from 1:64 at 10 weeks to 1:1024 at term, this in spite of the fact that the mother was getting no Rh antigens from the fetus. In the case presented today you saw the antibody titer less well controlled than in the other cases. One has reason to doubt the potency of the hapten preparations used in these cases.

The last case is the most exciting. If only a few similar results can be obtained, then the potency of the hapten preparation will have been established. Carter has long maintained that the titer must be brought to zero before the third month and kept there if a normal baby is to be delivered. For the Rh antigens first appear in the fetal erythrocytes in the third month, and if the baby is to be normal there should be no antagonism from then on.

With our preparation we were unable to reduce the antibody titers of four patients who were not pregnant. We gave a total of 4000 to 6800 mg. over a period of two to seven and one half months. During pregnancy we gave 2400 mg. in 14 hours with no effect on the titer.

It is probable that some lots of hapten are potent and others are not. Results will depend on having available a potent preparation and using it early enough.

Dr. Dippel is to be congratulated on the results obtained in the last case. I hope several more will present themselves for treatment soon, for the need is great in that small but tragic group of severely sensitized Rh negative women who lose one baby after another and who have sought help from us when we had no help to give.

THE PROBLEM OF SENSITIZATION FROM TOPICAL THERAPEUTIC AGENTS*

By SIDNEY PRYSTOWSKY, M.D.
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It is both interesting and instructive to contrast the emphasis that representative general and special journals place on the problem of topical sensitization. A twelve months review (1949) of the *Journal of the American Medical Association,* fifty-two issues, uncovers ten references to contact dermatitis, only three in article form, two in the abstracts, and five in the *Queries and Minor Notes.* In contrast to this, a twelve months review of the *Journal of Investigative Dermatology,* the *Archives of Dermatology and Syphilology,* and the *Journal of Allergy* (1949) thirty issues in all, reveals fifty-five articles relevant to contact sensitivity. Of these fifty-five articles, thirty-three or 60 per cent deal with instances of topical medication. These figures serve to emphasize the relative indifference of physicians other than dermatologists and allergists to a problem of wide scope.

Ever since the advent of topical therapeutic agents the problem of contact sensitization has existed. For the most part, however, drugs that were formerly used topically were of no especial value systemically. Thus, the patient's loss was minor. In contrast to this, the discovery of the sulfonamides and the antibiotics has permitted an unlimited drug potential. Infections that once produced a marked morbidity or a frequent mortality were tamed and controlled with these drugs. No wonder, then, we become dismayed at the presence of sensitivities embracing these amazing defensive weapons. It seems illogical to risk the valuable use of our present day antibacterial drugs on lesions that could be treated just as effectively with drugs of more limited expanse. The list of chemical and antibiotic drugs too dangerous for systemic therapy is growing apace. Why not then preferably use these less versatile weapons!

To illustrate, consider Albright and Sereton's case report of a wounded sailor previously treated with sulfanilamide. Within 24 hours after the use of 5 per cent sulfathiazole ointment on the eye, he developed local and general reactions, to wit: edema and chemosis of the eyes, general urticaria and itching, necrosis of the wounds previously treated with sulfanilamide, and a fall in blood pressure. Wilson reported a patient receiving penicillin parenterally for a non-ocular infection after having previously received local penicillin for his eye. He developed an allergic reaction of the previously treated eye. Case reports and articles such as these emphasize the desirability of avoiding promiscuous

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topical use of drugs whose future unlimited potential may thus be seriously compromised.

A recent report emphasizes the efficient bactericidal and the very low allergenic quality of topical bacitracin therapy. Another author reported a 0.5 per cent local sensitization record for bacitracin in contrast to a 5-10 per cent local sensitization record for penicillin and the sulfonamides. Tyrothricin, too, has been mentioned as a favorable drug for topical antibiotic therapy. Although case reports of sensitization to it have appeared, it is considered to have a relatively low sensitization index. Furthermore, these two antibiotics because of nephrotoxic and hemolytic side effects respectively are unfavorable for anything other than local therapy. Here, therefore, are logical substitutes for penicillin and the sulfonamides, their antibacterial spectra being very similar. We are cautioned by Meleny that with further purification bacitracin may be of general use even as a systemic antibiotic. Should this occur, it, too, should be protected from a future made impotent by sensitization. At present, there is much hesitation in the systemic use of neomycin because of the deafness and nephrotoxicity which may result. Thus, it becomes available for topical use. Its effectiveness against both gram-positive and gram-negative organisms, its stability, and its reputed low sensitivity index are all favorable factors. The polymyxins are other antibiotics that have been found effective against gram-negative organisms, but they are also reported to be nephrotoxic and, to some extent, neurotoxic. It remains for the future to determine whether they can achieve a place as systemic antibacterial drugs. If this proves impossible, then they will still add potent topical medicaments to the list already present.

It would be incomplete not to mention the availability of the popularly known antiseptics, such as alcohol, hexylresorcinol, boric acid, iodine, chlorine, the peroxides, potassium permanganate, the mercurials, and the silver preparations, the zinc salts, copper salts, the dyes, furacin, and numerous other chemicals. Some of these are easily sensitizing, others weak, some limited to the gram-positive organisms, others irritating, and so on. However, in the usual instance, antibiotics will perform no greater service locally.

It is in part the purpose of this paper to acknowledge also the potential sensitizing power of topical drugs. It is well recognized that a drug like any other contactant, may cause a contact dermatitis. Osborne said that drugs are responsible for 40-50 per cent of the cases of contact dermatitis. The weakening of the normal skin barrier due to the lesion in question probably accounts in part for the unrestricted list of drug sensitizers. The development of the contact dermatitis aggravates the extent of the dermatological problem, and, unless recognized in time, creates continued and progressive difficulty, allowing at best delayed healing.

Reference has already been made to the relative ease of penicillin and sulfonamide sensitization. For this reason alone there would be justification in avoiding their unnecessary use. It would be preferable to substitute the less versatile and less sensitizing drugs referred to previously.

Local anesthetics create a common topical sensitization problem. According to Osborne, 10-20 per cent of drug sensitization is due to local anesthetics. Lane and Luikart recently indicated the frequent potential hazard of contact and polyvalent sensitivity in the use of local anesthetics. Like others they have become aware of the aggravation of the original condition with the development of an overlying contact dermatitis. They further point out that the ointment bases are the usual vehicles of topical anesthetics and that they aggravate a pruritus by causing retention of skin heat. Pillsbury contrasted the slim evidence of the ability of topical anesthetics to relieve skin itching or pain with the undoubted evidence of their sensitizing ability. It follows that wise restriction in the use of topical anesthetics will result in fewer and less severe cases of contact dermatitis without compromising much in the way of therapeusis.

Appreciation of the problem of topical drug sensitization is increased when one recognizes that even anti-allergic drugs may sensitize. References have been made to dermatitis of the region of upper lip in those who use ephedrine nasal sprays. It is not considered too uncommon for rhinologists to develop a dermatitis of the hands from the frequent handling of ephedrine solutions. We are becoming increasingly aware of a contact sensitization hazard with the antihistamines. For example, case reports of a contact dermatitis due to pyribenzamine,® thephorine® and antistine® have been encountered. However,

to my knowledge there has never been a case report of a contact dermatitis due to epinephrine, the old faithful of the allergist's armamentarium. With mixed feelings then I give you such a case report.

The patient was a 63-year-old white woman. She had developed allergic asthma after a pelvic operation 30 years previously, at which time she had a hysterectomy. During the 30 years since, she had been seen by several internists and allergists without avail. During the preceding several years she had become more comfortable with the use of an epinephrine spray (inhalant A®).

The history afforded no clue to the allergen. Her asthma was perennial, and the only precipitating factors that she was aware of were emotional ones.

Complete scratch testing revealed slight reactions to dust and feathers. A feather pillow was thereafter removed from her room, and her home was made as dust proof as possible. Because of the continued asthma, desensitization to dust and feathers, starting with dilute solutions, was begun, but to no avail. It appeared that nervous factors contributed greatly to her unresponsive state.

At this point she complained of an itching and redness on the left lower eyelid that soon involved the entire left eyelid and the left side of the face. Within a matter of days the right eyelids also became involved. There was a salmon pink hue of the involved areas, a slight thickening of the involved skin, slight scaling, and onset of fissuring at the outer canthus of the left eye. All facial cosmetics and nail polish were avoided. Locally pyribenzamine® cream gave relief. Dr. Vince Moseley, consultant, after observing the patient's method of use of the spray inhalation, and the fact that she sprayed as much solution about the face as into the oral cavity, suspected inhalant A® as the antigenic substance. Patch testing confirmed his suspicion. Inhalant A® contains epinephrine and the preservative, chlorbutanol. Patch testing to chlorbutanol was negative, to inhalant A® positive, and to isuprel® (isopropylarterenol) negative. The conclusion that she had a contact dermatitis from epinephrine in the spray was reached. Furthermore, the results of the patch testing suggested the desirability of a trial with isuprel® as a substitute if her asthmatic state necessitated it.

She benefitted less on isuprel® than on inhalant A® and therefore desensitization to epinephrine was started. She administered 1-1,000,000 epinephrine subcutaneously into her right thigh, 0.1 cc. first day, 0.2 cc. second day, and noted the next day small papules and itching at the sites of injection. The lesions became larger and began to ache in spite of the discontinuance of the epinephrine injections. It disappeared slowly over a 2-3 week period while the patient was on antihistamines. After disappearance of the lesions, epinephrine was administered intramuscularly, and a small amount of air was injected through the needle before withdrawing it. After three weeks of gradual increase from 0.1 cc. of 1-1,000,000 epinephrine to 0.7 cc. of 1-1,000,000 epinephrine as described above, the epinephrine being given in the left thigh always, again there developed eruptions at the site of the previously self-administered epinephrine in the right thigh, as well as on the left arm near the elbow. The lesions were of a pruritic, papulo-vesicular type at the elbow. Before they disappeared, a crop of these lesions developed near the right elbow. No local therapy was given. Desensitization was started again at 0.1 cc. 1-1,000,000 and was carried through 1.0 cc. 1-1,000,000 at which time the reappearance of asthma caused her to refuse further therapy. A Praussnitz-Kustner reaction was negative.

Three days before expected guests arrived she developed marked asthma again, and emotional factors seeming strong in her case, a neuropsychiatric approach was then begun. A search of the literature uncovered no previous report of a contact dermatitis due to epinephrine.

Both Cohen and Waterstone and Rowe and Rowe reported the Arthus phenomenon after repeated epinephrine injections, the flare-up of previously injected sites through the stages of redness, swelling, sloughing, and scarring. Cohen and Waterstone also reported a Schwartzman reaction after repeated epinephrine injections, the above described flaring occurring after intravenous administration of epinephrine had followed subcutaneous administrations. It is interesting to note that synthetic epinephrine did not produce such a result. The comparison with the thigh eruptions in our case is striking, and the possibility of substituting synthetic epinephrine for the usual commercial epinephrine is intriguing, to say the least, and might be highly beneficial if the salubrious qualities of this remarkable drug could be shorn of its acquired sensitizing power.

The development of contact dermatitis from epinephrine in a spray used for years by this asthmatic patient is of much interest. The development of the lesions described during the course of desensitization with epinephrine on two occasions suggested either a contact dermatitis reaching the epidermis via internal routes to produce both the recurrence of lesions on the thigh and the papulo-vesicular eruption on the elbows, or an atopic dermatitis. The latter postulate explains the development of lesions at the flexural elbow areas, and the incomplete Arthus phenomenon-like reaction on the thigh. The absence of a recurrence at the original site of the contact dermatitis on the eyelids mitigates somewhat against the former postulate. The fact that only a relatively small percentage of patients with atopic allergy have a positive Praussnitz-Kustner reaction does not therefore necessarily discredit the possibility of atopic

dermatitis in the face of the negative result obtained.

In summary, the universal potential of contact sensitization by drugs must be respected. Such a respect may lead to the early recognition of an aggravation of local dermatitis by an overlying contact dermatitis. An early recognition allows an early recovery. Of far greater importance is the realization of the risk of blunting our razor-edged swords, the systemic antibacterial drugs. This we must not permit.

DISCUSSION (*Abstract*)

Dr. A. A. Herold, Sr., Shreveport, La.—I must plead guilty in my medical reading. Being simply an internist, I confine my readings to such general medical publications as the *Journal of the American Medical Association* and rarely see such limited special ones as journals of allergy and dermatology.

Somewhat analogous to Dr. Prystowsky's work is an observation which I have made on several occasions, namely: patients to whom I have administered penicillin parenterally who exhibit evidences of sensitization are preponderantly those who have made themselves sensitive by taking the drug orally or using it locally.

Very interesting is the case report of contact dermatitis from epinephrine, as detailed by the essayist. It goes to emphasize what the dermatologists have long preached, which is that no drug is like Caesar's wife, above suspicion, as a potential cause of dermatitis medicamentosa. Among the small list of drugs which seldom elicit sensitivity are milk of magnesia, saline cathartics, castor oil or cascara; all others, taken by mouth or parenterally must be taken into consideration in every case of dermatitis seen. The point about pencillin and sulfa drugs locally is well taken, but I would suggest that they never be used at all, rather than, as was said "avoiding their unnecessary use." Bacitracin or neomycin® should replace these. Everyone knows how severe a penicillin reaction may be.

As to the reaction from epinephine, it is regrettable that Dr. Prystowsky did not try the synthetic epinephrine, put out by Winthrop, to which he refers, as thereby he could have ruled out sensitivity to the animal protein contained in the epinephrine which he did use. In this connection, I might refer to my paper of yesterday regarding insulin allergy.

The reference to atopic dermatitis is certainly thought producing.

Dr. Clarence S. Livingood, Galveston, Tex.—It is impossible to over-emphasize the importance of cutaneous sensitization reactions in the topical treatment of cutaneous diseases. One must hasten to add that it is not possible to prevent such reactions entirely if one uses topical medication for the treatment of cutaneous diseases, because a certain percentage of persons will prove to be sensitive to every topical medicament which is available except physiological saline solution. I have seen contact type sensitization reactions following the application of soothing non-sensitizing vehicles such as petrolatum and mineral oil; all of us are familiar with the fact that a few persons are sensitive to lanolin. When one considers that almost all ointments, lotions, and cosmetic preparations must contain one or more of these bland substances, it becomes apparent that it is impossible to apply any preparation to the skin without experiencing an occasional sensitivity reaction.

Obviously this does not mean that we forego external treatment in the management of skin diseases. It does mean that we must follow certain rules if we are to reduce the contact type sensitization reactions to a minimum. First, the physician must recognize the fact that almost no substance is entirely free of sensitizing properties, and if the patient has an exacerbation or if the condition fails to improve, the topical medicament which has been used for the treatment of the patient must be considered as a possible cause, even if it is plain vasoline or a similar bland substance. Second, the physician should be aware of the fact that certain topical medicaments tend to cause sensitization reactions in a relatively high percentage of persons, and for this reason they should not be used. There is some difference of opinion in regard to this, and one hesitates to name specific preparations which are marketed by ethical pharmaceutical houses, but this discussion loses its purpose if this is not done. The majority of dermatologists agree that local penicillin preparations, sulfonamide ointments and lotions, furacin ointment, anti-histaminic ointments and lotions, ointments containing local anesthetics such as nupercaine® and benzocaine,® and the mercurial preparations must be placed in this category; many nonethical proprietary preparations contain potential sensitizers.

As Dr. Prystowsky has mentioned, several topical remedies which do not tend to sensitize the skin are available for the treatment of cutaneous pyogenic infections. Experience to date seems to indicate that neomycin ointment, bacitracin ointment, terramycin ointment, aureomycin ointment, chloromycetin ointment, combinations of polymyxin and bacitracin in ointment form, and tyrothricin may be included in this category. One possible disadvantage in using aureomycin and terramycin for topical administration is that if sensitization is induced, it may preclude the future use of a valuable systemic therapeutic agent. Perhaps subsequent experience will indicate that some of these antibiotics are more sensitizing than they appear to be at the present time, but until that possible sequence of events becomes manifest, it seems advisable to recommend these topical medicaments in preference to penicillin and sulfonamide preparations, furacin, mercurial ointments, and tincture of iodine.

It is essential to make a particular effort to avoid a potentially sensitizing topical medicament in the case of patients with dermatitis of any type because under these circumstances the threshold for the development of sensitization or irritant reactions is reduced. The general principle in managing these patients is summarized in the time honored trite motto which should guide us constantly, "First be sure to do no harm."

EVALUATION OF AVAILABLE THERAPEUTIC AGENTS IN OPHTHALMOLOGY*

By J. B. ROGERS, M.D.
Oxford, Mississippi

The ophthalmologist today is indeed fortunate to have at his disposal an array of wonderfully effective drugs. However, we are confronted daily with the problem of selecting the best drug for each presenting pathologic condition.

Let us consider what information we need in order to select the most effective drug in treating infections of the eye and ocular adnexa.

(A) The infecting organism and its characteristics
  (1) By smears, cultures and sensitivity studies, if possible
  (2) By knowledge of the most common ocular pathogens and their clinical characteristics, if any
(B) The antibacterial agents available
(C) The relative effectiveness of these agents against the organism
(D) The characteristics of the available agents
  (1) Bacterial spectrum
  (2) Development of resistance by bacteria
  (3) Physical characteristics
    (a) solubility
    (b) stability in various vehicles
    (c) available forms
  (4) Frequency of local irritation and sensitivity reactions
  (5) Penetration into the tissues
  (6) Dosage
  (7) Toxicity

It is accepted as fact that the ideal in treating diseases caused by micro-organisms is first to determine the nature of the infecting organism and then to select the particular therapeutic agent most likely to attack this organism within the affected anatomical region.

When such careful preliminary studies cannot be carried out, the choice of drug must be made on the basis of clinical judgment as formed through awareness of probabilities. In clinical ophthalmology this is most often the case. Intra-ocular infections demand immediate institution of therapy or the eye will be lost. With the drugs now available, such studies are often impractical in treating superficial infections. However, we can make smears and conjunctival scrapings in the office which will give us a more definite idea as to the nature of the infecting organism.

All strains of a given organism are not uniformly susceptible to the same agent. This makes it highly desirable to test the sensitivity of each infecting organism against the drugs to be used. Since treatment should be started at once, these studies will usually serve only as a check on the accuracy of the choice of the drug.

Penicillin has been the most effective agent against most gram-positive organisms. However, due to the widespread use of this drug, more and more resistant strains are appearing. This is especially true of strains of staphylococci, the most common pathogens in the eye. Some areas are reporting that up to 35 or 40 per cent of the strains tested are resistant to penicillin. Also, about 10 per cent of the cases in which penicillin is used topically become sensitized to the drug. These allergic reactions may be much more disconcerting to the patient than his original complaint.

Penicillin is of value in infections about the orbit when given systemically, but does not penetrate the intra-ocular tissues in effective amounts when given this way. Subconjunctival injections of one-half to one million units achieve fairly effective intra-ocular concentrations.[1] Direct injections of up to 1,000 units may be made into the vitreous. It is effective in the presence of pus. This drug should be reserved for systemic administration and for injection into certain localized areas of infection such as intra-ocular infections.

Bacitracin is effective against gram-positive bacteria and spirochetes with a spectrum similar to that of penicillin. No inhibiting enzyme comparable to penicillinase has been demonstrated. Sensitivity reactions are exceedingly rare. This drug is seldom used systemically because of toxic effects upon the kidney. It may be injected intra-ocularly in amounts up to 100 units but this amount causes slight vitreous damage.[2] For topical use it is available as ophthalmic ointment containing 500 units per gram.

The sulfonamides have a broad spectrum. Many of them are inhibited in their action by pus, blood, local anesthetics and substances containing large amounts of para-

*Read in Section on Ophthalmology and Otolaryngology, Southern Medical Association, Forty-Fifth Annual Meeting, Dallas, Texas, November 5-8, 1951.

aminobenzoic acid. This may be overcome by irrigating the area before instillation, by ordering 5 or 10 drops of the drug at frequent intervals so as to wash out the secretion, or by using one of the preparations not inhibited by these agents, for example, sulfamylon.®[4]

The three most valuable sulfa preparations for local use are sulfacetimide, gantrisin,® and sulfamylon.® Sodium sulfacetimide 30 per cent solution offers the highest concentration and the best penetration. Sensitivity reactions are extremely rare. We have used this drug in hundreds of cases within the last four years with only one sensitivity reaction (a severe one). It does sting somewhat when dropped in the eye and, for this reason, gantrisin® is preferred for children.

Sulfadiazine remains the sulfonamide of choice for systemic administration. Gantrisin® may be preferable in some cases, or a combination of the sulfonamides may be used to reduce the toxic effects. The sulfonamides penetrate all the ocular tissues readily. When given systemically, they appear to be of some value as prophylaxis against intra-ocular infections[5] but are usually inadequate after infection has developed within the eye.

Streptomycin is effective against certain gram-negative and acid-fast organisms. It is stable in solution. It does not penetrate the intact cornea. Streptomycin is the drug of choice against many strains of Bacillus pyocyaneus. Organisms rapidly develop resistance to this drug. Streptomycin remains the drug of choice in M. tuberculosis infections.[6] Combining it with para-amino-salicylic or one of the sulfones increases its effectiveness. Streptomycin may be injected intra-ocularly or subconjunctivally. In experimental animals up to 800 units injected into the center of the vitreous did not produce permanent damage.[7] I believe that 400 units should be the maximum for use in the human eye. Even then light perception may be lost for days.[8] The drug is toxic to retina and optic nerve and injection should be in the center of the vitreous away from these structures. Even with systemic administration hemianopsia and scotomas are not infrequent. The toxicity of streptomycin for the eighth nerve and vestibular apparatus is well known.

A combination of penicillin 500 units and streptomycin 200 units in 0.1 cc. of normal saline should be injected into the affected area at the time of the initial repair of all perforating injuries of the globe unless there is a history of sensitization.

Aureomycin is effective against gram-positive bacteria, gram-negative bacteria, and rickettsiae as well as spirochetes and some viral diseases. Its value in virus diseases of the eyes is not so great as first reports indicated. We have seen little, if any, benefits from this drug in Herpes simplex. In Herpes zoster the pain seems to subside more quickly and some cases seemed aborted. We have no controls and this impression may be entirely unfounded. Aureomycin solutions are unstable and, therefore, of limited use. A stable ointment is available. Aureomycin does not penetrate the intact cornea nor does it get into the intra-ocular tissues in effective concentration when given systemically. It has proven to be a valuable drug for topical application, especially in some refractory cases of blepharitis. Sensitivity reactions are very rare. It is not recommended for intra-ocular injection.

Terramycin is effective against gram-positive and gram-negative bacteria, rickettsiae, spirochetes, and some viruses. Solutions are stable for about five days. The ointment is stable. The drug does not penetrate the intact cornea, but does penetrate the abraided cornea. When given systemically, it does not reach the intra-ocular tissues in effective amounts. The recent reports of Mitsui and associates[9] indicate that terramycin is the most effective drug now available for the treatment of trachoma. However, Dr. Siniscal states that in the southern Missouri section they still prefer the sulfonamides.[10] Slowly developing resistance to aureomycin and terramycin has been demonstrated. Also, a simultaneous increase in resistance of bacteria to both of these drugs upon exposure of the organisms to either agent has been shown to occur.[11] These findings are indicative of the similar nature and mode of action of these two drugs, and emphasize the importance of adequate dosage at the beginning of treatment. This is of epidemiological importance because, through inadequate dosages, we may build up many resistant strains of bacteria.

Chloramphenicol is effective against many gram-negative bacteria, rickettsiae, and moderately effective against gram-positive bac-

teria, spirochetes, and viruses. It is soluble in water only to the extent of about one-fourth per cent. Solutions are stable for ten days. The one per cent ointment is stable. Sensitization is rare. Solutions cause no discomfort when dropped into the eye. The drug penetrates the intact cornea and does not retard healing. When given orally, it penetrates readily into the intra-ocular tissues. It may be injected systemically and intra-ocularly, but this is not necessary.[12] Almost no serious toxic effects have been reported.

Neomycin is water soluble, basic in nature, highly resistant to heat and microbial decomposition. It is active against numerous gram-positive and gram-negative bacteria as well as acid-fast organisms, but not against fungi and true viruses.[13] It is stable in solution and is available as solution and ophthalmic ointment. It is not recommended for systemic use in its present form because of nephrotoxic and ototoxic effects. It should be considered for topical use since it probably will not be used systemically, and it may be effective against organisms resistant to other drugs.

Some very interesting observations have been made regarding synergism and antagonism of some of these agents. Dowling[14] says that streptomycin, by inhibiting the growth of gram-negative rods, complements the action of penicillin on the gram-positive cocci and also inhibits the production of penicillinase by the gram-negative rods. He reports synergistic action between aureomycin and streptomycin in brucellosis, penicillin and streptomycin in enterococcic infections, penicillin and bacitracin in syphilis. *In vitro* and *in vivo* antagonism of chloramphenicol, aureomycin, and terramycin with penicillin has been demonstrated. If the penicillin is given first, the effect is not demonstrable. The effect appears to be due to the slowing-up of multiplication of the bacteria by these agents, thus reducing the effectiveness of penicillin which acts best upon the rapidly multiplying young organisms. There may not be true antagonism. In some instances a combination of these drugs may be beneficial, for example, in preventing superinfections. At present the situation needs more clarification. The additive effects of para-amino-salicylic acid and streptomycin have been mentioned.

A tremendous volume of reports, both experimental and clinical, have appeared concerning the value of cortisone and ACTH in ophthalmology. I wish merely to point out a few pertinent facts concerning their use. These agents control the inflammatory and exudative phases of ocular diseases without affecting the etiological factor. This suppression of destructive phases is an extremely valuable aid, but we must continue to seek and eradicate the underlying factors.

Patients receiving systemic cortisone and ACTH should be under close observation and the physician should be thoroughly familiar with side-effects and dangers of these drugs. Woods[15] has pointed out the beneficial effects as well as the dangers and necessary precautions in using these agents in tuberculosis of the posterior segment.

The most valuable form has been topical cortisone. It is very effective in the many inflammatory conditions that affect the anterior segment and is practically free of harmful effects. Subconjunctival injection is usually not so effective as topical application and adds unnecessary trauma to the already existing pathologic condition. Studies of the effects of these drugs on healing of wounds have shown that all elements of wound healing, especially those of mesenchymal origin, were suppressed and the formation of connective tissue was greatly delayed. It was hoped that this suppression of granulation and connective tissue could be put to beneficial use in glaucoma surgery. The work on trephinations of the globe in Rhesus monkeys by Von Sallman and associates[16] showed that there was simply a delay of about two weeks in the usual processes. These same workers showed that local cortisone caused a significant delay in healing of surface defects of the cornea.

Ascorbic acid has been used in treating vitreous hemorrhages for some time. The beneficial effects were attributed entirely to decreased capillary permeability. More recent observations indicate that ascorbic acid can lower the viscosity of the vitreous and may thus hasten resorption by increasing dispersion of the blood.[17] Additional work confirming the beneficial effect of ascorbic acid on the healing of deep ulcers and wounds of the cornea has shown that the effect on the

epithelium is slight or negligible, but the effect on the stroma is significant.[18]

The value of rutin in retinal vascular diseases is still uncertain. Once the changes have made their appearance, they do not seem to be altered by rutin.

Efforts at treating vascular occlusions in the retina with anticoagulants have, as a rule, been disappointing. This very important problem deserves continued study.

The use of stellate ganglion block, as reported by Coston,[19] is of special interest.

The use of hyaluronidase to hasten and increase the effects of procaine injections for anesthesia and akinesia has found fairly wide acceptance. Other ophthalmic uses for this drug have been suggested but not widely adapted.

Hydrosulphasol® is being widely used in treating chemical and thermal burns of the cornea. At present, I know of no adequate controlled studies to prove the value of this drug.

The use of curare-like substances to obtain better muscular relaxation in intra-ocular surgery has been advocated. These are very toxic drugs. At least twenty-two deaths have been reported from their use in recent years.[20] These drugs will be contraindicated for many patients in the age group requiring cataract operations. A trained anesthetist, thoroughly familiar with the drugs, should administer them. No deaths have been reported from their use in eye surgery, but deaths have occurred from doses smaller than those usually used in cataract extractions. The reports (with one exception) show that vitreous loss continues to occur. No comparative figures are given to show that a significant decrease in vitreous loss was achieved by their use. Latest studies show that they have no effect on intra-ocular tension.[21] It is doubtful that these agents will find very wide acceptance by ophthalmic surgeons.

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POLYCYTHEMIA SECONDARY TO BRAIN TUMOR*

REPORT OF TWO CASES

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An increase in the total number of red blood cells is known to occur in many different clinical situations. When such an increase is found in the absence of any inciting cause, the disease process is termed primary polycythemia (erythremia, polycythemia rubra vera). When, however, the polycythemia is thought to have arisen in response to some other disease process present, the condition is termed secondary polycythemia or symptomatic polycythemia.

Vaquez[1] published the first description of primary polycythemia and clearly delineated it from the secondary type. Osler[2] reported nine cases of this disease (including Vaquez' original one) and it was largely as a result of this paper that the disease became known and recognized in English-speaking countries. The

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cause of primary polycythemia is at present unknown.

Secondary polycythemia may be considered to be a physiological response of the body elicited by those disease processes that lead to long continued hypoxia of the arterial blood of the greater circulation with resultant tissue hypoxia. Such polycythemia would seem an attempt on the part of the body to increase the amount of oxygen carried to the tissues and thus is physiological, whereas primary polycythemia is possibly a neoplastic process involving the erythroid tissues primarily.

A small number of cases has been reported in the literature in which polycythemia has been found associated with intracranial space-occupying lesions, usually tumors. The exciting factor producing such polycythemia is at present a subject for debate. The authors have recently observed two such cases and it is the purpose of this paper to present summaries of the pertinent findings in these cases, to review the theories concerning the mechanism producing such polycythemia, and to present a discussion of the probable exciting factors.

CASE REPORTS

Case 1.—B.P. (Unit No. A-946), a 29-year-old colored woman was admitted on the Cancer Service of one of us (F.E.K.) on March 27, 1951. The history was obtained primarily from the patient's family as the patient was totally deaf and blind at the time of admission. The patient had complained of headache since the Fall of 1950. Shortly afterwards she began to notice gradually increasing deafness followed by increasing blindness. The patient volunteered the complaint of "rolling in my head" which "came and went" and was made worse by moving the head. The patient had seemingly enjoyed excellent health prior to the onset of her present illness. No other pertinent data were obtained.

Physical examination showed temperature 98.° pulse 84, respiratory rate 10, and blood pressure 106/70. The patient was a well developed and well nourished young colored woman who responded quickly when touched and seemed remarkably alert. There was no evidence of dehydration. Respirations were slow and shallow. The pupils were dilated and did not respond to light. There was a horizontal nystagmus with the slow component to the right. The corneal reflex was absent on the right. Fundoscopic examination revealed bilateral papilledema of a marked degree. Ear, nose and throat examination was normal. The neck was quite stiff, the patient turning her entire body when an attempt was made to rotate her head. The heart and lungs were normal. The abdomen was soft and no organs or masses were felt. Examination of the pelvis was normal except for a moderate leukorrhea. Neurological examination was limited because of the inability of the patient to cooperate fully. There was questionable ability of the patient to distinguish light. There was a right facial paralysis of the central type and complete nerve deafness bilaterally. All deep reflexes were moderately hyperactive but there was no clonus. The abdominal reflexes were absent bilaterally. The Hoffman sign and an equivocal Babinski response was elicited bilaterally. The only sensation tested for was pain (pin and pressure) and this appeared to be present throughout the body. The patient was seen to move all of her extremities with ease.

The urine was normal on several examinations with the specific gravity ranging from 1.012-1.025, no albumin, sugar or acetone. Occasional white blood cells were seen but no red cells or casts. Results of the blood count are shown in *Table 1.*

Blood drawn from the femoral artery revealed: total oxygen capacity; 25.0 vols. per cent (absolute hemoglobin 19 grams). While breathing atmospheric air the arterial blood showed 84 per cent saturation which rose to 91 per cent saturation, however, when a nasal catheter was inserted and oxygen at 7 liters/min. given.

A bone marrow specimen was obtained by aspiration from the sternum and showed a moderate degree of hyperplasia involving all the nucleated elements but without evidence of neoplasia.

Blood Wassermann and Kline were negative. Blood chemical studies revealed: chlorides (whole blood) 410 mg. per cent; serum calcium 10 mg. per cent; carbon-dioxide combining power 62 vol. per cent; total serum protein 8.00 grams, albumin 5.72 gm., globulin 2.28 gm. An electroencephalogram was normal.

Skull x-rays showed the sella to be grossly enlarged with thinning of the anterior wall and decalcification

Date	RBC (mil.)	HB (gm.)	WBC	PMN	LYMPH	MONO	EOS	BASO
3/27	5.2	17	8,000	61	33	3	3	0
3/28	6.6	18						
3/30	6.4	18.3	10,850	82	17	0	0	1
4/2	6.5	18						
4/4	5.8	16	13,100	85	15	0	0	0
3/30	VPC 48 per cent, MCV 75 cu.mi., MCH 28.5 mi.mcg., MCHC 38.5 per cent, Coag. time (cap. tube) 3'30", bleeding time (Duke) 2 min.							
4/4	Reticulocyte count 1.5 per cent.							

TABLE 1

and partial erosion of the posterior clinoid processes. There was a small focal area of erosion in the right petrous pyramid on its posterior aspect.

Suboccipital exploration was performed on March 29, 1951. Preliminary trephine released 40 cc. of fluid without marked increase in pressure. No tumor was identified in the area of the right cerebellar hemisphere and closure was made. Following exploration the patient pursued a progressive downhill course. On April 3 examination revealed that there was now "steaming" of the right lens, the left disc showed papilledema of plus-4 diopters. On April 5 the patient showed paralysis of the right arm and an unequivocal Babinski on the left. The sensorium remained remarkably clear. On the same day, arteriograms of the right internal carotid artery showed a normal appearance of the vessels visualized. From March 2 until the patient's death, even more marked slowing of respiration was noted with the rate at times becoming as slow as 5 per minute without any evident increase in depth of inspiration. On April 7 the patient died quietly. At no time in the patient's course did she have a convulsion, vomit, become evidently disoriented or exhibit any of the more severe signs of increased intracranial pressure.

Autopsy permission was limited to examination of the brain. There was moderate flattening of the convolutions and narrowing of the sulci. The floor of the third ventricle was found to protrude downwards in the region of the pituitary stalk. The pituitary appeared to have been flattened and mushroomed out into the enlarged sella; it weighed 2.1 gm. (normal 0.5 gm.). There was a pressure cone about the medulla. On vertical section of the cerebellum and pons a cystic lesion measuring 25 mm. in greatest diameter was seen. The tissue was delicately villous in character, appeared to have infiltrated and eroded into the folia of the cerebellum. There was an additional lesion of the same character in the right lobe of the cerebellum which was not apparently connected with the first lesion. There was an associated extensive internal hydrocephalus which could readily be ascribed to the blockage of the foramen of Magendie by the first described neoplastic lesion. Microscopic examination revealed the tumor to be an angio-reticuloma. Microscopic examination of the pituitary failed to reveal any evidence of adenoma or presence of abnormal cells. The relative numbers of the various cell types appeared normal.

Case 2.—I.T. (Unit No. A-4359) a 45-year-old colored man was admitted to the Cancer Service of one of us (F.E.K.) August 27, 1951. The patient gave a history of occipital headaches which had been present for the past 5-6 months. He had also noted vertigo and a stumbling gait during the previous six weeks. His vision had been blurred at times and he had noted diplopia of a transient nature which was usually associated with vertigo. For the previous three weeks he had noted complete deafness in the left ear. The past history and family history revealed nothing of significance.

Physical Examination.—His temperature was 98.4,° pulse 100, respiratory rate 6, and blood pressure 110/85. The patient was a well developed and well nourished colored man in no distress and exhibiting no evidence of dehydration. Examination of the eyes revealed the pupils to be round, the right pupil was larger than the left but both reacted quite sluggishly to light and accommodation. There was lateral nystagmus with the slow component to the left. This became more pronounced on right lateral gaze. There was a questionable rotatory nystagmus noted on upward gaze. Fundoscopically there was bilateral grade IV papilledema with old and new hemorrhages and an area of retinal detachment in the right eye. Ear, nose and throat were normal. The neck was supple; the heart and lungs were normal. The abdomen was soft and no organs or masses were palpable.

Neurological Examination.—Vision in the right eye was 20/100; left 20/30. There was slight symmetrical constriction of both visual fields. There were extraocular muscle changes as noted above. There was complete nerve deafness of the left ear. Other cranial nerves were intact. The gait was staggering with the patient falling to the left but the Romberg was negative. There was weakness of grip in both hands, more marked on the left. There was no evident weakness of the legs except on walking. Deep reflexes were normal throughout. The abdominal reflexes were absent bilaterally, the cremasteric reflexes being present bilaterally. The Babinski was negative bilaterally. All sensations were intact throughout the body.

Urinalyses were normal on numerous occasions but for the presence of trichomonas in three different specimens. Results of the blood counts are shown in *Table 2.*

Bone marrow was obtained by aspiration from the sternum August 30, and revealed a normocellular marrow. The myeloid series was normal. Differential count of the erythroid series was normal and the ratio of nucleated red cells to white cells was 42/100.

Blood sugar was 135 mg. per cent, blood urea nitrogen 12 mg. per cent, blood Wassermann and Kline were negative. Lumbar puncture was performed August 28 through the fourth lumbar interspace using a

Date	RBC (mil.)	HB (gm.)	WBC	PMN	LYMPH	MONO	EOS	BASO
8/28	5.9	16	8,400	66	34	0	0	0
9/1		15	14,300	87	11	2	0	0
9/8		17	11,200	69	28	3	0	0
9/10	6.13							
9/17	5.72	15.5						
9/17	VPC 42 per cent, MCV 73 cu.mi., MCH 27 mi. mcg., MCHC 37 per cent. Reticulocytes 0.3 per cent.							

TABLE 2

No. 22 gauge needle. Opening pressure was 260 mm. H_2O; 6 cc. of clear fluid was withdrawn slowly; the closing pressure was 220 mm. H_2O. Cell count of the spinal fluid showed 1 lymphocyte and protein 88 mg. per cent. X-rays of the skull and chest were normal.

On August 30 arterial blood was obtained by femoral artery puncture. Three samples were gotten, total oxygen capacity (average) was 26 vol. per cent (absolute hemoglobin 19 grams). Oxygen content of the three samples was 22.2, 22.1 and 21.9 respectively for an average percentage saturation of 85.4.

On August 31 a decompressive sub-occipital craniotomy was performed. Exploration of the left cerebello pontine angle failed to reveal the presence of a tumor. The patient made an uneventful recovery from the operation. On September 11 the patient was begun on x-ray therapy and received 3,000 R. in air to each of 5 ports for an estimated dose of 4,500 R.

The patient was discharged to be followed in the clinic. He returned November 2, 1951 at which time he said that his headaches had decreased markedly in intensity. He returned again December 4, 1951. Examination at this time revealed the pupils to be round, regular and equal. They both reacted well to light and accommodation. The fundi showed no hemorrhages but there remained a slight blurring of the disc margins. Lateral nystagmus with the slow component to the left remained as before. The gait was steadier but there was still weakness of the left leg on walking and rather marked weakness of all movements of the left arm. The deep reflexes remained equal and normal. Hearing was now present in the left ear but definitely diminished below normal. The patient said that he now had no headache and his only complaints were related to the weakness and inability fully to use the left arm.

Femoral puncture was repeated on this visit, the total oxygen capacity was 22.5 vol. per cent (hemoglobin 16.5 gm.). The oxygen content of the sample was 21.1 vol. per cent or 93.7 per cent saturation.

A complete blood count done on this visit showed the red cells to number 5.7 mil., hemoglobin 15 gm., white cells 5,300, polymorphonuclears 64 per cent, lymphocytes 35 per cent, eosinophils 1 per cent, VPC 49 vol. per cent, MCV 86, MCH 26, MCHC 30.5 per cent.

The frequency of symptoms referable to the central nervous system in patients with primary polycythemia is well documented.[3-12] Such symptoms as headache, vertigo, dizziness, diplopia, transient paralysis, paresthesias, scotomata, hemianopsia, dimness and blurring of vision and others have all been reported singly and in various combinations. Likewise, papilledema, while admittedly rare, may also be found resulting from primary polycythemia. In an extensive review of the literature, Drew and Grant[10] were able to find 17 cases of unquestioned papilledema due solely to such a cause. Thus, a patient presenting himself with central nervous system symptoms and polycythemia poses a difficult problem in diagnosis. Likewise, polycythemia has been found to occur sporadically in seeming association with central nervous system diseases other than neoplasms. Thus, it has been observed to occur in association with paralysis agitans[5] and Huntington's chorea.[13]

The first report of a case of brain tumor in which the presence of polycythemia was appreciated seems to have been the report in 1929 by Oppenheimer[6] in which he mentioned a patient thought to have had primary polycythemia who at autopsy was found to have a medulloblastoma of the cerebellum. Since the appearance of that report 16 additional cases have been reported.[9 10 14-21] The lesion found in these reported 19 cases (authors' included) were as shown in *Table 3*.

That the polycythemia seen in association with brain tumor is a result of a change produced by the tumor itself and not mere coincidence would seem to be proved by the reversion to a normal blood picture following operative removal of the tumor as reported in Carpenter's three cases,[14 21] in four out of five of Schmidt's cases,[19] and in Woolsey's case.[20] Likewise, the reversion to a more normal blood picture in our *Case 2* associated with improvement in the associated neurological abnormalities following decompression and radiation therapy might be cited. The absence of splenomegaly, elevated white cells or platelets, or significant reticulocytosis (above 2 per cent) in all instances in which such examinations are reported, tends to place the polycythemia observed in the secondary group as such findings are present in the majority of cases of primary polycythemia.[22]

	No. Cases	Bibliography Reference
Cerebellar hemangioblastoma	4	(14, 20, 21)
Cerebellar angioreticuloma	6	(19, present *Case 1*)
Cerebellar medulloblastoma	1	(6)
Frontal lobe endothelioma	1	(15)
Cortical subdural hematoma	1	(10)
Frontal lobe sarcoma	1	(16)
Glioblastoma multiforme	1	(17)
Unknown (probably pontine)	1	(present *Case 2*)
Unknown	3	(9, 18)
Total	19	

Thus, of the 19, 11 arose from vascular tissue and 12 were subtentorial.

TABLE 3

Experimentally, polycythemia has been produced in dogs and man by the chronic administration of ephedrine sulfate[23] and by modulator nerve section in dogs, resulting in hypertension.[24] However, the lack of significant hypertension in our cases at any time while under our observation and the inconsistency of its presence in the other reported cases make it quite unlikely that reflex vascular changes with secondary hypertension resulting from the presence of a brain tumor plays a role in the production of the observed polycythemia.

Carpenter[14] in discussing his cases, considered that they represented instances of what he termed neurogenic polycythemia but did not define this term. Other authors[10 17] consider the polycythemia to be in some way a result of stimulation of the hypothetical center in the brain concerned with the regulation of the production of red blood cells. Of interest in this regard is the often referred to work of Schulhof and Matthies[25] in which they report the production of polycythemia by injection of siliceous earth into the "proximad vegetative centers" of rabbits. This work has not been confirmed.

Haynal and Graf[26] studied 10 cases of polycythemia vera, 5 cases of polycythemia secondary to congenital heart disease and 5 cases of polycythemia secondary to chronic severe lung disease. They concluded, on the basis of various tests of pituitary function, that all of the cases showed some signs of hyperpituitarism and said that "an increased activity of the erythropoiesis seems to be connected with or brought about through the agency (increased activity) of the hypophyseal-hypothalmic system." The presence of the enlarged pituitary in *Case 1* could probably be cited in support of this thesis. However, in spite of its increase in total size, the lack of adenoma, Crooke cells or peripheral evidences of those findings usually considered to result from over-production of the various pituitary hormones makes us believe that the enlarged pituitary was not causally related to the polycythemia.

From the studies done in our cases we feel that the definition of the stimulus which produced the observed polycythemia may well have been that operative in the production of all types of secondary polycythemia, namely, long-standing tissue hypoxia. Thus, it was found that the oxygen saturation of these patients' arterial blood was definitely subnormal at the times polycythemia was present. This we believe resulted from a long-continued inadequate respiratory exchange brought on by the abnormally slow respiratory rate which in turn was probably a result of depression of the medullary respiratory center by the pressure of the slowly growing tumor. The fact that the oxygen saturation of the arterial blood of *Case 1* could be raised by means of increasing the oxygen concentration of her alveolar air is also a point in favor of this theory. In polycythemia vera the oxygen saturation of the arterial blood has been found to be normal.[27] If the polycythemia of brain tumors is due to stimulation of a red blood cell production center it would seem that the oxygen saturation of such increased numbers of red blood cells would be normal; as such an increase would be more comparable to that seen in polycythemia vera.

It has previously been noted that the majority of the reported cases showing this combination of factors were found to have subtentorial tumors arising from vascular structures. Just why this should be so is not clear. It may well be, however, that the relatively slow growth of such tumors allows time for the production of polycythemia secondary to depression of the medullary respiratory center whereas in those cases of tumor without polycythemia the tumor may be, relatively, more rapidly growing and death or operative intervention ensues before sufficient time has elapsed to allow such a response to become manifest. Such a depression would of necessity have to have a slow and insidious course and the factors operative in the maintenance of the level of excitability of the respiratory center must be in delicate balance. Such a combination of circumstances must be unusual and this would seem to be verified by the observed rarity of this condition.

SUMMARY

(1) A review of the literature concerning the relation of the central nervous system to polycythemia, primary and secondary, is presented.

(2) The cases of polycythemia associated with brain tumor are reviewed and 2 new cases are reported. It was found that of the

19 cases reported, 12 were subtentorial and 11 arose from vascular structures.

(3) The theories concerning the production of polycythemia in cases of brain tumor are reviewed. The authors are of the opinion that the most probable cause of the polycythemia observed to occur with brain tumors is a result of long continued tissue hypoxia brought about through prolonged depression of the medullary respiratory center by slow-growing (particularly subtentorial) tumors.

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THE ROLE OF THE GENERAL PRACTITIONER IN COMMUNITY MEDICAL SERVICE*

By J. P. SANDERS, M.D.†
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Family Counselor and Consultant.—The general practitioner must fit well into the community life of the families that he attends. He must know its problems, activities, and endeavors. The average general practitioner is a family man himself, often has several children, and is therefore interested in school affairs and their activities. He must know their curricula, their health program and many of the other activities of the school. Frequently he is the school physician, and must look after the athletic teams, both while at practice and at play. He naturally must watch their general health, work out safety programs with other members of the school faculty, and be particularly interested in the welfare of the children in general.

No good general practitioner can be successful unless he participates in the church activities of the community. He usually belongs to one of the more important churches, and is frequently found on its governing board. Many times he directs the church activities and assists in carrying out building and other church programs.

Civic organizations now have endorsed general practice as one of their membership classifications. Most general practitioners belong to some civic club, and many participate in many civic endeavors in the community in which they live. The family physician should direct the patients' avocation and recreation as well as look after their health during their working hours. He guides them on the vacations they take, and frequently suggests trips which they may be financially and otherwise able to make.

In his capacity as family counselor, he frequently settles little disputes between relatives and friends, and often sets aright problems that develop in the family life of his patients.

The General Practitioner, a Public Health Consultant.—The family physician works closely with the health unit in looking after the general health of the community in which

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†President, American Academy of General Practice.

he lives. Prevention of disease is the first line of defense, and in most of the cases he will do the vaccination of all the members of the family against any contagious or infectious disease. It will be the physician who tells patients when re-vaccination and booster shots are required, and he will be the one to advise against certain diseases and how to avoid them when vacations are taken or trips are made out of the country.

Nutrition is certainly the problem of the general practitioner now as never before. He must know the number of calories the patient needs, the amount and kind of carbohydrates, fats and proteins which must be ingested. But beyond that, he must also know what the necessary amounts of calcium, iron, phosphorus, and other minerals are. He must know what the vitamin requirements of the body are, and whether or not the patient is ingesting a sufficient quantity, and whether or not he is assimilating those which he does take. During his visits with the family, either in the office or in the home, he may be able to observe subclinical vitamin deficiency in some member of the family, and direct the patient's attention towards its correction.

Another preventable condition is definitely on the increase at the present time. This is accidental injury. A large percentage of all accidents are preventable. Actually, accidents stand in fourth place at the present time in order of the cause of death. But in children between the ages of 5 and 15, accident tops all other causes of death. In the first four years of life, it kills more children than does whooping cough, measles, enteritis, diphtheria, pneumonia, meningitis, poliomyelitis, scarlet fever, and diarrhea.

A great many parents do not realize the actual danger until the accident has happened. For example, drugs and prescriptions are frequently left on the table or put in the closet within reach of a small toddler who is ever curious to explore new things in this world. In my own experience, I have seen two children under three years of age who died from taking too many aspirins, left where they could be reached by the inquisitive child. Parents frequently can be trained to give emergency care before the doctor comes. This is a part of our work as family physician if we are to save many of these human lives from accidents. The patient should know how to stop blood, how to splint an arm or leg while the patient is being transported to the doctor, and many other first aid tricks that are part of emergency care.

Since the care of the aged is getting to be more and more of a problem of ours, it behooves the family physician to care for the oldsters. As their age increases, they require more medical care from year to year. This involves more of the degenerative diseases and less of the acute infections than ever before. We have to know more about heart disease, high blood pressure, arteriosclerosis, diabetes, and particularly their influence on the aged. Actually, of course, the aged are more prone to accidents. Their bones are very fragile; they see and hear poorly; and they are in constant danger from moving or sharp pointed objects. We are derelict in our duty if we do not warn the person in charge of their care of the danger inherent. We must guide the attendant in the management of old persons.

Nutrition in the geriatric patient is probably a greater problem than in the pediatric one. The diet of the oldster must be constantly surveyed to see that the intake of food is sufficient, and that he is supplied with a sufficient amount of vitamins and minerals. He may be taking in a sufficient quantity, but because of poor assimilation, he may be unable to use them. Ours is a big job in caring for these persons.

The dementia which goes along with this aging population may be mild or extreme, or any variation between the two. Frequently the patient is unable to take care of himself, and may have to have a constant attendant to look after him. We know definitely that with the proper diet, mental deterioration is less progressive than in those patients who are not well fed. We must keep this constantly in mind in our care of this ever increasing aging population.

The General Practitioner in Good Medical Care.—It must be stressed from time to time that every individual needs a personal or family physician. This personal physician must be well trained in general medicine. If he is not generally trained, he is not fulfilling his role as a good general practitioner. He must know all of the modern methods used in diagnosis and treatment of disease. He must use all of the modern facilities, either in his own office, or have them available so that they can be utilized to the fullest extent in proper diagnosis of the case.

The day of the "horse and buggy doctor" is gone. The patient does not want him, and none of our modern trained medical men wish to be one. While it has been definitely proved by the North Carolina group that a general practitioner can take care of 85 per cent of all diseases with no more than the instruments carried in an ordinary handbag, it is essential that the general practitioner have a well equipped office and every modern facility at hand for the medical care of his patients. In this case it is probable that the average good general practitioner can treat from 90 to 95 per cent of his patients, depending upon his location, his association, and the type of his practice.

The patient should consult his personal physician with every disease or accident. If the case is within the limitations of the training and experience of his physician, then his family doctor will continue the care until its successful termination. But if it is of such severity or nature that a more extensively trained person is needed, then the family physician will be expected to call in a consultant. If other consultants are necessary, then the family doctor should be the one to call them in. Again, the general practitioner should stay on the case until its successful termination. Thus we will avoid some of the present difficulties commonly known as "patient-stealing."

The extent of the general practitioner's services will depend upon his type of practice. A man doing solo practice in an isolated community will necessarily do a more varied type of work than an individual who is practicing in a small group, or one who practices in a large group.

There will always be some tendency for doctors to specialize. Some may be more interested in one type of practice than in another. Even in small groups with only four or five men, we will find one who is more interested in surgery, another who is more interested in obstetrics and pediatrics, while the others may be more or less interested in general or internal medicine. If a general practitioner is practicing in a large group with possibly 25 or 30 doctors, then he will limit his practice more and more to his field of interest. His postgraduate training will tend more and more to follow the lines of his activity, but regardless of the practice which occupies the physician, he must know his own limitations, know when he needs help, and who that help should be.

Group Practice is Preferable.—Many studies have been carried on in regard to group practice versus solo practice. Invariably the conclusion has been that group practice is preferable. In group practice, doctors are able to pool their facilities, finances and professional abilities for the common good. Usually such group practice does not mean cheaper practice so far as the cost is concerned for the patient, but it does usually mean improved medical care. The group will have better and more facilities for making diagnosis and treatment than if each man works alone. They have the stimulus of each other to keep them constantly alert in the latest developments in medicine.

The ability of doctors to work with each other develops a spirit of cooperation not ordinarily seen in solo. Physicians are able to call in other members of their group in consultation, and discuss the best medical care without additional expense to the patient. Usually the doctor most capable of taking care of that particular type of disease will have the general management of the case.

It seems important that in group practice auxiliary personnel may be used more effectively. Better records are kept and are available to other members of the group when the original physician is away on vacation, or is out because of ill health or for other reasons. Consequently, in the larger cities where we find many well trained general practitioners, there is the definite tendency to group themselves together with good specialists into a clinic type of practice.

Composition of a Medium Size Group.—Mr. Nyberg and I * have published a plan whereby a group of 33 doctors consisting of 17 general practitioners and 16 specialists might take care of a population of between 25 and 35 thousand people. The details were developed from published reports obtained from *Medical Economics,* the *Journal of the American Medical Association,* and the Lee-Jones Report.

We suggested the following distribution of physicians: 17 general practitioners, 2 specialists in obstetrics and gynecology, 2 in surgery,

*Integration of the General Practitioners Into Well Organized Private Group Practice Clinics. Sanders, J. P.; and Nyberg, C. E.: "GP" (April) 1950.

SOUTHERN MEDICAL ASSOCIATION

Forty-Sixth Annual Meeting

MIAMI, FLORIDA

November 10, 11, 12, and 13, 1952

All activities in the Bayfront Park area—Registration, Exhibits and some sections will be in the Auditorium and other sections in the Library and nearby hotels.

See other side for hotel accommodation form and other information

APPLICATION FOR HOTEL ACCOMMODATIONS

Southern Medical Association Meeting, Miami, November 10, 11, 12, and 13, 1952

A Housing Bureau has been established for your cc nvenience in making hotel reservations in Miami for the forthcoming meeting of the Southern Medical Association. Comparable room rates are listed. *Use the reservation blank below.* Please specify your first, second, and third choice hotel. All requests for reservations should give: (1) anticipated date and hour of arrival; (2) date and approximate hour of departure; and (3) names and addresses of all persons who will occupy the accommodations. ALL RESERVATIONS SHOULD BE CLEARED THROUGH THE HOUSING BUREAU. Since all requests for rooms will be handled in chronological order, you should mail your application as early as possible. All reservations will be confirmed. For location of hotels see reverse side. There will be no headquarters hotel—all sessions will be held in the Municipal Auditorium, Ship, Library or in nearby hotels.

Hotel	Single	For Two Persons		
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Columbus	5.00–6.00	....	8.00–10.00	20.00
Dallas Park	6.00–7.00	....	8.00	12.00–16.00–20.00
Everglades	6.00–7.00–8.00	....	8.00–10.00–12.00	16.00–18.00
McAllister	5.00–6.00	7.00–8.00	8.00–9.00–10.00	18.00–22.00
Miami Colonial	5.00–6.00	....	8.00–10.00–12.00	18.00
Patricia	5.00	....	7.00	....
Plaza	5.00	....	7.00–8.00	....
Robert Clay	4.00–5.00	....	5.00–6.00–7.00	10.00–12.00
Towers	5.00	....	7.00–8.00	12.00–14.00

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Please reserve the following accommodations for me for the Southern Medical Association meeting:

Hotel Preference	Kind of Accommodations Desired
1st Choice.....	.....Single room at $.....to $.....
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Arrival date.....	.....hour.....A.M.....P.M.
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If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere.

See other side for location of hotels

2 in ophthalmology, 2 in otolaryngology, and 1 each in radiology, dermatology, pediatrics, orthopedics and pathology. To round out the group completely, 3 internists should be included, who have had special training in cardiology and gastro-enterology.

From annual expectancy tables on diseases requiring diagnosis and treatment by general practitioners and specialists, certain conclusions were reached. For example, it has been generally accepted that well trained general practitioners can care for 85 per cent of all patients who come to them. On this basis the general practitioners would care for 27,004 of the 31,770 patients who came under their care in the community. The total number of visits would be 140,090. This would average about 27 patients per day for each general practitioner accounting for 300 practice days per year.

Specialists would care for 15 per cent of the patients or 4,766. On the basis of 18 visits per case, they would total 72,630 visits, or approximately 15 patients per day for a 300-day year. The total number of operations was calculated on the basis of expectancy, and amounted to 2,010. Broken down, they amount to 840 general surgical procedures, 60 obstetrical, 150 gynecological, 630 eye, ear, nose, throat, and 330 orthopedic.

According to the tables, patients seen by the specialists would vary from 11 patients per day for the orthopedist to 25 per day for the pediatrician. This group would take care of all emergencies, physical examinations, immunizations, and other routine work naturally carried on in a busy community practice.

The General Practitioner, the Backbone in Good Medical Care of the Community.—The general practitioner in the management of the patient during an illness might be compared to the manager of a plant in industry. The manager is not expected to know all the details and all the specialized types of work that are carried on in the plant. He will have machinists and specialty men in each department who know more about the work of their individual groups than does the manager. But it is the job of the manager to coordinate all of their efforts, and see that a good product is turned out. In some respects, the general practitioner should be like this man. Much of the work, of course, he can do himself. Most of the ailments can be cared for without special help. But the general practitioner must know his limitations, and call in the consultant when it is necessary. In a similar vein, as the manager in industry, the family physician should never have to offer apologies, either to the patient or to the specialist for his own role in good medical care.

Medicine in a Period of Transition.—The medical profession as a whole realizes that it is in a profound transition period. More medical progress has been made in the last half century than was made in the twenty centuries before. We are undergoing economic, social, political, and spiritual transformation which was not anticipated by our fathers a generation ago. In economics, we see the total cost of medical care constantly rising, but we as doctors are able to do things for the patients that our predecessors never dreamed were possible. Diseases are being cured, morbidity is being lowered, and lives are being prolonged far beyond all expectations.

Many complications have arisen as a consequence of these results. As I mentioned before, the aged offer a problem which we have done very little to solve. Political and spiritual implications have come up both in our every day life and in our government that at best are only being tided over. Certainly no one will say that we have solved any of these great problems.

But Americans have always been able to solve their problems as they have come up. I have no fear that we shall fail to solve them. Our willingness to sit down and discuss all the angles, put all the cards on the table, so to speak, has been one of our great assets. Through arbitration, concessions and deliberations, we have been able to meet every emergency which has confronted us. The medical profession has always kept abreast of the times. For a while we made a definite swing too far toward specialization. Now we are headed back in the right direction for general practitioners and specialists to give the best medical care possible. In our enthusiasm for our work, we must never lose sight of what is good for the patient. Time, money, effort, ambition and ability must all be secondary to good medical care.

In conclusion, I still have complete confidence in the ability of the American people to solve their problems, and in the medical profession to answer the call of duty.

Southern Medical Journal

JOURNAL OF THE
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SOUTHERN MEDICAL ASSOCIATION
Forty-Sixth Annual Meeting
Miami, Florida, November 10-13, 1952

MIAMI, CONVENTION CITY FOR 1952

Miami in Capsule

Here are a few condensed facts about the city where the Southern Medical Association will convene November 10-13. The estimated population of the Miami area is 690,000. There are fourteen hospitals with 2,200 beds with 500 more under way, and 700 physicians. Special medical institutions are the Miami Heart Institute, Children's Cardiac Home, Dade County Cancer Institute, Dade County Blood Bank and Research Foundation, newly opened medical school at University of Miami, and the Variety Children's Hospital for poliomyelitis.

In the Miami area there are 600 hotels, 3,000 restaurants and 3,500,000 tourists per year. The average winter temperature is 70 and summer 79 with 360 days of sunshine per year. There are 1,000 small industrial plants; and ninety million dollars of aviation per year. In the back country, forty thousand acres are planted in citrus fruits and vegetables, or used for dairying.

HINTS TO CONVENTION GUESTS

No fall or winter clothes are needed in Miami in November. It will be warm and sunny. Summer clothing will be most comfortable, with a light wrap for women in the evening.

Shopping centers are on Flagler street in Miami; Miracle Mile in Coral Gables; and Lincoln Road, "the Fifth Avenue of the South," in Miami Beach.

A sight-seeing boat trip among the islands of Biscayne Bay will be enjoyed. The visitor should see the nine-mile stretch of hotels along the ocean in Miami Beach, and the fifty modern motels in a group north of Golden Beach, toward Hollywood; and the famed Hialeah Park (race course) which is open to visitors. A drive should be taken through Sunset Islands, top residential section of Miami Beach, and through Coral Gables, Miami's popular residential city and site of the modern University of Miami with nine thousand students.

Crandon Park should be visited with its three miles of ocean beach, reached by Rickenbacker causeway across Biscayne Bay.

A post convention trip should be planned to Havana or Nassau, a one-hour trip by airliner or to Jamaica, called the world's most beautiful island, in the blue Caribbean Sea, only three hours away.

COMBINATIONS OF ANTIBIOTICS

More than one antibiotic at a time may be useful in the treatment of resistant infections. For example, a case has been reported of bacterial endocarditis caused by a strain of micrococcus which failed to respond to several drugs. *In vitro* tests showed that it was not inhibited by high concentrations of any single antibiotic, but was highly susceptible to a mixture of streptomycin and terramycin. The case was cured by use of this combination.[1] Bacterial endocarditis due to enterococci is frequently cured by simultaneous administration of penicillin and streptomycin, although each drug used alone cures only a small number of cases. Two drugs must not be used indiscriminately since striking antagonism of two has been demonstrated in, for example, human pneumococcic meningitis. It is impossible at present to generalize as to when

the use of two products instead of one may be beneficial, since at times a given pair, for example, terramycin and bacitracin, is synergistic against one strain of bacteria but antagonistic against another strain of the same species.[1]

Jawetz[1] and associates of the University of California have conducted a painstaking study of the *in vitro* effects of a number of the most popular antibiotics, alone or in combination, upon a number of different microorganisms. The antibiotics were allowed to act against the microorganism for twenty-four hours, following which the amount of bactericidal activity was estimated. Two drugs were considered synergistic if both together produced in twenty-four hours a more rapid rate of bactericidal effect than the sum of action of either alone. The conclusion of the California group is that combinations may be useful but very few general rules may be established to foretell the response.

It is not possible to designate certain pairs of drugs as definitely or generally synergistic and others antagonistic; the effects vary with both the organism and the strain. Against a particular strain of micrococcus, penicillin plus streptomycin, and streptomycin plus terramycin were synergistic; but penicillin plus terramycin were antagonistic.

However, the common antibiotics appear to fall into two general groups, consideration of which has some clinical value. In group 1, penicillin, streptomycin, bacitracin, and neomycin are placed; and in group 2, aureomycin, chloramphenicol, and terramycin. Drugs of the first group often act synergistically with one another upon an organism which is susceptible to each alone; and in this group no antagonism was observed from one to another.

None of the drugs of group 2 evinced either synergistic or antagonistic effects; sometimes two of these preparations were additive. If an organism was highly sensitive to a member of group 1 (penicillin, streptomycin, bacitracin, or neomycin) then addition of a drug from group 2 (aureomycin, chloramphenicol, or terramycin) usually had antagonistic effects. If the organism was relatively resistant to a member of group 1, and somewhat susceptible to group 2, synergistic effects of group 1 and 2 preparations were occasionally obtained. Synergism between penicillin and a group 2 drug was rarely observed. These facts should have some practical usefulness.

For best results in resistant infections, it is exceedingly helpful to have the particular microorganism tested in the laboratory against several antibiotics, both singly and in combination.

1. Jawetz, E.; Gunnison, J. B.; Bruff, J. B.; and Coleman, V. R.: Studies on Antibiotic Synergism and Antagonism. J Bact. 64: 29 (July) 1952.

LABORATORY DIAGNOSIS OF RIBOFLAVIN DEFICIENCY

The human picture of riboflavin deficiency is described as one of corneal injection with photophobia, cheilitis, and scleral injection.[1] It is of course difficult or impossible to find a pure human riboflavin deficiency. Vitamins which affect the eyes and skin should be of especial interest to ophthalmologists and dermatologists, and methods of diagnosing the so-called sub-clinical deficiency have been sought over the years.

The accessory food factor isolated as riboflavin was formerly designated vitamin B_2 and vitamin G. It was the heat stable portion of the B complex, as opposed to B_1, thiamine, the thermolabile antineuritic factor. Riboflavin is found in milk, eggs, liver, yeast and in certain vegetables. In monkeys some years ago vitamin G deficiency was shown to result in cataract formation. In most animals it shows as stunting of growth or weight loss, with seborrheic or scaling dermatitis and hair loss. In adult dogs it results not infrequently in sudden death, without a preliminary period of weight loss.

Mann and associates[2,3] of the Harvard School of Public Health have studied extensively the effects of riboflavin deprivation upon the Cebus monkey, a small primate, a New World monkey, which they chose as less expensive and more easily handled than the more used and larger Old World monkeys. The quantity of circulating riboflavin in the

1. Hyman, H. T.: An Integrated Practice of Medicine. Philadelphia and London: W. B. Saunders Co., 1946.

2. Mann, George V.; Watson, Patricia L.; and Adams, Lucile: Primate Nutrition. I. The Cebus Monkey—Normal Values. J. Nutrition 47:213 (June 10) 1952.

3. Mann, George V.; Watson, Patricia L.; McNally, Anne; and Goddard, James: Primate Nutrition. II. Riboflavin Deficiency in the Cebus Monkey and Its Diagnosis. J. Nutrition 47: 225 (June 10) 1952.

blood plasma of this species under various experimental conditions was estimated by a photofluorometric method which they consider more accurate than other technics.

Riboflavin deficiency in the Cebus monkey was manifested by the usual picture described in other animals. Anemia was not a necessary concomitant; a tendency to polycythemia was noted in a few animals, and has been reported also in human subjects.

Autopsy findings in the deficient monkeys were of interest. Characteristic endocrine changes were observed, particularly in the thyroid and adrenal glands, in which secretory activity seemed to be stopped. Gonadal function was repressed. Ataxia was a prominent terminal symptom, and was due to peripheral nerve demyelinization.

During life, an immediate and profound fall of the plasma levels of riboflavin and its derivatives was consistently observed when this dietary component was low. The plasma level appeared to be a useful indicator of the deficiency. In human beings the Harvard group also noted a rise and fall of blood riboflavin which paralleled the changing supply in the food.

Estimation of plasma riboflavin levels, from these studies would seem to offer a specific diagnostic test for the deficiency, which needs to be expanded by study of a considerable group of human subjects with a variety of diseases, particularly a group of older patients or those with degenerative conditions. The riboflavin levels of patients with developing cataract, or with dermatologic disturbances might be informative, as would riboflavin levels of patients with different types of adrenal dysfunction or gonadal deficiency. The technic points to an accurate method of demonstrating whether or not the tissues in various chronic diseases are depleted of this portion of the vitamin B complex. Deficiency should be suspected in persons who have subsisted for a considerable period on an inexpensive or low protein diet.

Bodansky and associates[1] have shown that in cases of cancer and other chronic diseases, the plasma and white cell concentrations of ascorbic acid (vitamin C) are apt to be low. They consider this due to increased utilization of ascorbic acid, with excessive catabolism of protein. The finding could indicate an increased requirement of ascorbic acid during progress of these diseases; or some of the clinical pictures themselves perhaps develop more rapidly in individuals with a low tissue level of vitamin C. The same may be true for riboflavin. Both these materials play an important part in maintenance of normal adrenal function, and clinical results of the accurately diagnosable deficiencies need appraisal.

The biochemical technics for study of circulating quantities of the accessory food factors are increasingly useful.

1. Bodansky, Oscar; and Wooblewski, Felix; and Markardt, Blanch: Concentrations of Ascorbic Acid in Plasma and White Blood Cells of Patients with Cancer and Non Cancerous Chronic Diseases. Cancer 5:678 (July) 1952.

COLOR IN MEDICAL ILLUSTRATION

All the world loves color and stops to admire it. Color in medical periodicals is an innovation still exceedingly expensive but increasingly popular. Methods of color reproduction are rapidly improving and costs should decline in the not too distant future.

Color reproduction for scientific use must be true, since inaccurate color rendition is misleading and will do far more harm than good. Correct diagnosis may depend upon color fidelity. Color is used in some publications, not to add to the scientific value of the work, but to arrest attention for a paper which otherwise might not be read.

Color plates are made by preparing several pictures using different wave lengths of filtered light, separating the colors of the picture, then superimposing these to make one image. Recently great advances have been made in the commercial technic of color separation and engraving, so that it is possible, through meticulous work, to reproduce colors much more truly than formerly, and to prepare plates which can greatly clarify a scientific presentation and facilitate the teaching of medical subjects. Color filters are being improved. The next development is said to depend upon use of the photo-electric cell to separate light of different wave lengths, and this should be a still more accurate method.

The JOURNAL several months ago made a printing connection enabling it to furnish color work of the highest quality. For several months there has been excellent color work

in the advertising pages of the JOURNAL. In this issue appears the first scientific paper using illustrations in color. Probably no journal has to date had as good color work as this JOURNAL is presenting.

TWENTY-FIVE YEARS AGO

FROM JOURNALS OF 1927

Purification of Vitamin B.[1]—The search for the chemical substance or substances that represent vitamin B has shown that they are elusive. Reports of the isolation of the vitamin in crystalline form have repeatedly been published, only to be found premature or incorrect. The question of the identity of the antineuritic substance and the so-called growth promoting factor has repeatedly been debated. The evidence seems to be growing in favor of a duality of substances. Yeast is a rich source of both. One is comparatively thermostable and may be identified with Goldberger's alleged pellagra preventing factor. The other is relatively labile, particularly in the presence of alkalis, and may represent the antineuritic potency. Both seem to be essential to well being.

Pellagra in Mississippi.[2]—Economic stress accompanied by an unbalanced diet has affected some of the recently flooded areas of the lower Mississippi Valley. Pellagra, accordingly, has increased. In that area in 1924, the reported cases of pellagra numbered 20,000, and the reported deaths, 1,020; in 1927, according to an estimate made by Goldberger and Sydenstricker, the number of cases of pellagra will be from 45,000 to 50,000, and the number of deaths from 2,300 to 2,500 . . . As yet the quantities of (the pellagra-preventing dietary essential) P-P in the various food stuffs are unknown but there is reason to believe that the substance is present in small amounts in milk, vegetables and fruits, and in larger amounts in lean beef, mutton, pork, fish, fowl, yolk of eggs and powdered yeast.

1. Editorial. Some Recent Aspects of Vitamin B Research J.A.M.A. 89:1153 (Oct. 1) 1927.
2. Editorial: Pellagra. J.A.M.A. 89:1157 (Oct. 1) 1927.

Correspondence

A CLINICAL STUDY OF A BALANCED ANESTHESIA MIXTURE

Denver, Colorado, July 21, 1952

Editor, SOUTHERN MEDICAL JOURNAL:

In the July, 1952, issue of the Southern Medical Journal, there is an article by Shane and Ashman entitled, "A Clinical Study of a Balanced Anesthesia Mixture: Report of 10,000 Cases." That article describes anesthesia in which 10 per cent cyclopropane is blown out into the room. The article states that tests on this mixture show that it is explosive for a distance of three feet from the breathing bag. I must rise to protest against publicizing a method of giving anesthesia which entails such a hazard. Anything explosive within three feet of the breathing bag certainly takes in too much of the operating theater to make it a safe procedure in these days.

(Signed) ROBERT W. VIRTUE, M.D.
Assistant Professor and Acting Head,
Division of Anesthesiology,
University of Colorado School of Medicine.

A CLINICAL STUDY OF A BALANCED ANESTHESIA MIXTURE

Baltimore, Maryland, August 8, 1952

Editor, SOUTHERN MEDICAL JOURNAL:

Dr. Virtue is rightly concerned with the explosive range of the "Balanced Mixture" anesthesia. Furthermore, he is quite correct in his contention that "anything explosive within three feet of the breathing bag certainly takes in too much of the operating theater to make it a safe procedure in these days."

Dr. Virtue, however, has apparently read the original article incorrectly since he has misquoted us. Our article states that "this balanced mixture is explosive within a three-foot radius of the exhalation valve (not the breathing bag), but no more explosive than other anesthesias which utilize ether or cyclopropane." Since the breathing bag may be as much as three to four feet away from the exhalation valve he gives the impression that almost an entire operating room would be within the explosive range. This is obviously untrue. His comments, furthermore, may give the impression that other commonly used anesthesia technics are not as explosive as the "Balanced Mixture" and therefore carry less hazard.

We hasten to add that the semi-closed system of administering gas-oxygen-ether for example, a technic used throughout the world, one which is advocated in most anesthesia textbooks, and one of the oldest anesthesia methods known, is not only explosive within a three-foot radius of the exhalation valve, but it is considered to be more explosive than the "Balanced Mixture" advocated by us. We are certain that Dr. Virtue does not refuse to use gas-oxygen-ether because it is explosive within this range.

The use of cyclopropane in a closed system presents not only numerous disadvantages in comparison with the "Balanced Mixture," but it tends to provide the anesthetist with a false sense of security in so far as explosions are concerned. We have no false sense of security in utilizing the "Balanced Mixture." We know it is explosive. We have said it was. We have waved the yellow flag of caution for those who wish to use it. And we feel that the chances of an explosion with the "Balanced Mixture" are less than that encountered in closed system cyclopropane or semi-closed gas-oxygen-ether. Both of these latter technics are being used in almost every hospital in the United States and Europe.

We wish to thank Dr. Virtue for raising this important question since it was, we felt, in the best interests of both the anesthesiologist and the patient.

(Signed) SYLVAN M. SHANE, D.D.S.

(Signed) HARRY ASHMAN, M.D.
Department of Anesthesiology
Lutheran Hospital of Maryland, Inc.

Book Reviews

The Oculorotary Muscles. By Richard G. Scobee, B.A., M.D., F.A.C.S., Assistant Professor of Ophthalmology, Washington University School of Medicine, St. Louis, Mo. Second Edition. 512 pages with 159 illustrations. St. Louis: The C. V. Mosby Company, 1952. Price $11.00.

The author and publisher of the first edition, which appeared in 1947, hoped for the sale of two thousand copies. To their amazement it went through several printings and sold about ten thousand copies. It was purchased by almost every ophthalmologist, eye, ear, nose and throat man, medical school library and hospital, and also by non-medical workers in fields allied to ophthalmology. Perhaps the first edition enjoyed the largest sale ever accorded a book on muscles of the eye.

Even so, the author wished to improve immediately on many details of the book.

During World War II, he had the responsibility of testing the eyes and eye muscles of thousands of men at Air Force centers. With his tremendous amount of material and his indefatigable study, he was able to challenge successfully many generalities accepted without critical review.

It is a matter of great sorrow in the ophthalmological world that Dr. Scobee died at the age of 40. With several more decades of life, he would have revolutionized, even more, the concepts of muscles.

Since this is his last writing (he received this edition from the presses only a month or two before his death), all workers in all eye fields will want a copy for its great improvement over the first edition, and also as a remembrance of a very great man.

Studies in Visual Optics. By Joseph I. Pascal, B.S., M.A., O.D., M.D. Director of Eye Department, Stuyvesant Polyclinic; Attending Ophthalmologist, New York Polyclinic Medical School and Hospital, Outpatient Department. 800 pages, illustrated. St. Louis: The C. V. Mosby Company, 1952. Price $12.50.

The author describes the two purposes for his book: the presentation of old material in a new way that is easy to understand, and of new ideas, new methods, new applications, simplified formulas, memory aids for things easily forgotten, schematic and graphic presentations of things that are otherwise just nebulous ideas, and a host of other helpful hints.

A study of his book discloses that the author has achieved these purposes. He has not attempted to cover visual optics completely, and many of his topics are presented in an unorthodox way. Dr. Pascal not only wishes to teach with his book, but to stimulate workers in this field to further research.

His contribution of the Dam formula and the benzene ring as applied to optics have long been recognized. These are elaborated upon in this book, together with a representation of his numerous scientific articles in the optical, ophthalmological and optometric literature.

The book is somewhat uneven in reading, varying from good human interest stories in the manner of case reports, to pages of advanced trigonometric equations.

It is a small library on visual optics and there is much in it for all levels of ophthalmologists.

Text-Book of Ophthalmology. By Sir Stewart Duke-Elder, K.C.V.O., M.A., LL.D., D.Sc. (St. And.), Ph.D. (London), M.D., F.R.C.S., Hon. D.Sc. (Northwestern), D.M. (Utrecht), F.R.C.S. (Edin.), F.A.C.S., Surgeon Oculist to H.M. the King; Consulting Ophthalmic Surgeon to the British Army and the Royal Air Force; Director of Research, Institute of Ophthalmology, University of London. Volume V, The Ocular Adnexa. 5,713 pages, with 1,181 illustrations, 32 in color. St. Louis: The C. V. Mosby Company, 1952. Price $22.50.

Now Volume V is published and every ophthalmologist will immediately proceed to obtain one. Were an ophthalmologist allowed only five books in his library, the choice would be easy, the volumes of Duke-Elder's Text-Book.

Originally planned to include injuries of the eye also, the book grew so that its more than 1,000 pages are limited to considerations of the ocular adnexa alone. The five divisions are developmental anomalies, diseases of the lids, diseases of the lacrymal apparatus, diseases of the orbit and diseases of the para-orbital regions.

Not only is there the expert abstracting of the most significant articles on each subject with key photographs, but they are presented in Sir Stewart's authoritative and lucid manner.

The first three volumes of the Text-Book now command much higher prices than the original publication price because they have great merit and they are out of print. All copies of Volume Five will no doubt soon be sold.

Principles of Refraction. By Sylvester Judd Beach, A.B., M.D., F.A.C.S., member, Council, National Society Prevention of Blindness; Past President, American Ophthalmological Society; Past Secretary and Emeritus Member, American Board of Ophthalmology. 157 pages. Illustrated. St. Louis: The C. V. Mosby Company, 1952. Price $4.00.

This small gem stands out conspicuously among the many books on refractions because it is practical and because it gives methods that have been successful in an extensive practice for many years. Dr. Beach's courses in refraction for ophthalmologists at all levels have always been eagerly sought and this organization of his methods will be desired by all ophthalmologists.

Most books on refraction have some chapters on trigonometric equations of various lenses and prisms, which the reader, usually without conscience, skips. This will not be true of a single page of Dr. Beach's book, for he gives practical guidance not only in the basic principles of refraction, but also in applying the newer knowledge of psychosomatic medicine to those who imagine they have ocular refractive errors.

Physical Diagnosis. By Harry Walker, M.D., F.A.C.P., Professor of Clinical Medicine, Medical College of Virginia, Richmond, Virginia. 461 pages with 126 illustrations. St. Louis: The C. V. Mosby Company, 1952. Price $8.00.

This book provides an able and comprehensive survey of the principles of physical diagnosis. It proceeds from the history and general considerations to the examination of the head and neck, and then downward and inward to the other regions of the body. The chapters are subdivided according to the four classical methods of diagnosis. While mentioning many diseased states, the authors rely on detailed verbal descriptions in preference to pictures. Traditionally, most similar texts contain brief data on common chest diseases. It is puzzling, however, that well over a third of this book is taken up with the diagnostic aspects of diseases of the heart and lungs, including their pathology, physical signs, and differential diagnosis, accompanied by some good roentgenograms. These sections are too extensive for any introductory course in physical diagnosis. The preface does not state the exact purpose of the book, but the sophomore may find it slow reading, partly because the type is so small. Its contents are better suited to the requirements of the more advanced student, or physician, who wishes to review, especially, the diagnostic criteria of diseases of the heart and chest. These are very adequately covered here.

A Textbook of Clinical Neurology. With an Introduction to the History of Neurology. By Israel S. Wechsler, M.D., Clinical Professor of Neurology, Columbia University, New York. Seventh Edition. 801 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1952. Price $9.50.

Frequent revisions of this popular textbook have kept it as up to date as it is possible for a textbook to be. In addition to the systematic consideration of diseases of the nervous system, newer diagnostic techniques such as angiography, electromyography and double simultaneous stimulation are included. There are a few new illustrations. One cannot help wonder about the advisability of including fifty pages on neuroses when so many excellent textbooks of psychiatry are able to handle this subject more adequately. The fourteen pages devoted to psychological diagnosis are written by David Wechsler, Ph.D., and are helpful in orienting the student as to the general meaning and use of the different psychological testing measures available today. One is rather surprised to find that some of the newer antibiotics are not mentioned in the treatment of some infectious diseases of the central nervous system, but this omission is not serious as the information is readily available elsewhere.

This volume is recommended, both as a textbook for the medical student and as a reference work for practitioners not specializing in neurology or psychiatry.

The Principles and Methods of Physical Diagnosis. Correlation of Physical Signs with Physiologic and Pathologic Changes in Disease. By Simon S. Leopold, M.D., Associate Professor of Clinical Medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania. With a chapter on Sounds from the Thorax: Acoustic Principles, by S. Reid Warren, Jr., Sc.D., in E. E., Professor of Electrical Engineering, the Moore School of Electrical Engineering, University of Pennsylvania. 430 pages with 390 illustrations and 19 color plates. Philadelphia and London: W. B. Saunders Company, 1952. Price $7.50.

In this new presentation of physical diagnosis, close correlation between physical findings and pathologic changes occurring in disease has been adopted as the guiding principle. This has been most perfectly accomplished in the chapters on the respiratory and circulatory systems. Reproductions of frozen sections and other pathologic specimens, and roentgenograms are used to explain the pathogenesis of signs obtained in diseases of the heart and chest. Many of these illustrations are taken from the well-known "Norris and Landis," of which Dr. Leopold has been a contributor. There is a profusion of figures and photographs, including some superb color plates. The technic of eliciting the common reflexes, however, has not been visualized.

The various parts of the body are discussed in the sequence in which they are usually examined. The chapters on the musculoskeletal system and the gynecologic examination are very satisfactory. Both are often neglected in similar texts. A doctor of electrical engineering has contributed a discussion of acoustic principles of sounds from the thorax. The author has made good use of the recent literature. His style is simple and accurate. His objectives reflect the current emphasis on pathologic physiology in disease.

Principles and Practice of Aviation Medicine. Third Edition. By Harry G. Armstrong, M.D., F.A.C.P., The Surgeon General, United States Air Force. 476 pages, illustrated. Baltimore, Maryland: The Williams & Wilkins Company, 1952. Price $7.50.

The problems of commercial passenger flights are discussed by this distinguished author as well as military aviation.

An interesting history of Aviation Medicine is followed by the principles of pilot selection, and the details of the examination. The management of the problems of human adaptation to altitude, speed, acceleration, and the emotional reactions to flight are made clear to the average physician.

This edition has been revised and four new chapters have been added. The subject matter covers a variety of specialties, and there are minor instances of oversimplification. Scattered typographical errors need to be eliminated.

Surgery of the Chest. A Handbook of Operative Surgery. By Julian Johnson, M.D., D.Sc. (Med.), Professor of Surgery, School of Medicine and Graduate School of Medicine, University of Pennsylvania; and Charles K. Kirby, M.D., Assistant Professor of Surgery, School of Medicine, University of Pennsylvania. Illustrated by Edna Hill. 387 pages, illustrated. Chicago: The Year Book Publishers, Inc., 1952. Price $9.00.

This is one book in which the authors have ac-

complished what they endeavored to do, namely, to give the details of the standard operations done in thoracic surgery. Illustrations are clear and all of the principles advocated by the authors are sound and accepted by the majority of the thoracic surgeons throughout the country. The book includes discussion of pre- and postoperative care and the various diagnostic procedures that are necessary before the usual thoracic operations. The only error that was found in the book was in an illustration of diaphragmatic hernia, plate 79, which is upside down.

This book should be of great value to any general surgeon doing some thoracic surgery, and to students and interns who wish to familiarize themselves with the subject.

Allergic Pruritus. Its Dermatologic Management. By Stephan Epstein, M.D., Editor. An official publication of The American College of Allergists, Inc. 76 pages, illustrated. St. Paul: Bruce Publishing Company, 1952.

This interesting little book is composed of nine short papers delivered in a panel discussion on the dermatologic management of allergic pruritus, delivered at the 1950 meeting of the American College of Allergists. Dr. Epstein and seven associates contributed papers.

It can be said tritely, that there is more itching than allergy in the presentations. The avowed purpose of the work is to present to allergists and general practitioners accepted measures for use in treatment of various itching skin diseases. There is little mention of allergy in this connection.

The first chapter is on the physiology and pharmacology of itching. This is followed by two chapters on diagnosis of various skin diseases characterized by itching. Then follow four chapters on various methods of treatment giving numerous prescriptions for local medicaments. Finally there are two chapters on bacteria and focal infection in skin diseases.

The little book is interesting reading and a valuable addition to the library of any physician who needs suggestions for the local treatment of itching skin diseases seen in general practice.

Hemifacial Spasm. A Clinical and Pathophysiological Study. By Robert Wartenberg, M.D. Foreword by Macdonald Critchley, M.D. 86 pages, illustrated. New York: Oxford University Press, 1952. Price $4.00.

This slim monograph is written in the author's careful characteristic style. It is a consideration of the etiology and physiologic mechanism of spasms of one side of the face. This subject is covered comprehensively with voluminous references to the world literature. It is the author's contention that both postparalytic hemifacial spasm and cryptogenic hemifacial spasm are release phenomenon similar to the spasticity of upper motor neuron lesions. The exposition of his ideas is clear and logical but one is disappointed to find that it was necessary for the author to postulate an anatomically unsupported suppressor division of the seventh nerve nucleus and an excruciatingly discreet and selective "low grade infective process" or degeneration to round out the otherwise satisfying consideration of this clinical entity.

The Photography of Patients. Including Discussions of Basic Photographic and Optical Principles. By H. Lou Gibson, F.B.P.A., A.P.S.A., Medical Division, Eastman Kodak Company, Rochester, New York. 118 pages, illustrated. Springfield, Illinois: Charles C. Thomas, Publisher, 1952. Price $5.50.

Every physician should either photograph his interesting cases, or have a photographer do it for him. Unfortunately, not many physicians are expert photographers and this book will help them to become so. The physician who cannot expend his energies and time in this direction, can learn from this what to ask the photographer to take for him.

For many years, Lou Gibson has been in the medical division of the Eastman Kodak Company and in line of duty has written thousands of letters to doctors answering their questions about photographing their patients. He has also written many informative articles on various phases of medical photography.

These experiences have been the source for this extremely practical book.

It is pointed out that the kind of photograph needed depends on its planned use. A different type should be taken for teaching, or for a staff conference, or for publication.

The use of lighting and position to show the proper details are explained, filters and the indicated films for bringing out certain medical facts are described. The technical features of developing the negative and printing the paper are also clearly explained.

Written from a practical viewpoint, and with considerable humor, this book is highly recommended to all physicians and medical photographers.

Ophthalmic Glossary. By M. R. Goldman, M.D., Assistant in Department of Ophthalmology, Montefiore and Passavant Hospitals, Pittsburgh, Pennsylvania. 40 pages. Pittsburgh, Pennsylvania: Richard Rimbach Associates, 1952. Price $2.50.

Ophthalmology has a large number of terms which are almost completely distinct from other medical fields and this compilation seems to list them all. Apparently this plastic spiral bound book was designed for opticians and workers in various fields related to ophthalmology so that eye terms could be easily located and understood.

A wide usage of this book is predicted because all ophthalmologists will wish a copy for their secretaries. It has those special terms which secretaries need; and it will save the time and effort that a regular medical dictionary requires.

Diagnostic and Experimental Methods in Tuberculosis. Second Edition. By Henry Stuart Willis, M.A., M.D., F.A.C.P., Superintendent and Medical Director, North Carolina Sanatoria, McCain, North Carolina; Consultant, United States Public Health Service; Formerly, Associate in Medicine, The Johns Hopkins University, and Visiting Physician, The Johns Hopkins Hospital, Baltimore, Maryland; Martin Marc Cummings, M.D., F.C.C.P., Director, Tuberculosis Research Laboratory, Lawson Veterans Administration Hospital, Veterans Administration, Chamblee, Georgia; Instructor in Medicine, Emory University

School of Medicine, Atlanta, Georgia. 373 pages, illustrated. Springfield, Illinois: Charles C. Thomas, Publisher, 1952. Price $10.00.

This book is an excellent presentation of the many faceted subject, modern diagnostic laboratory procedures in tuberculosis.

It is divided into three parts. The first deals with secretions, excretions, and constituents of the body in tuberculosis. Staining, culturing, and animal inoculation for tuberculosis are thoroughly explained. A part of the first chapter deals with two fungus diseases which simulate tuberculosis, namely, histoplasmosis and coccidioidomycosis. The last chapter in this part has nine pages dealing with the nonpathogenic acid-fast bacteria.

Part Two covers related clinical and laboratory methods, such as BCG vaccination; determination of sensitivity to streptomycin and PAS; tuberculin preparation and application; and serological diagnosis.

Part Three discusses methods of value in the study of tuberculosis experimentally produced, and also histological technics.

This is an up to date treatise on laboratory methods used in tuberculosis.

A Text-book of Pathology. By E. T. Bell, M.D., Emeritus Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota. Contributors: B. J. Clawson, M.D., Emeritus Professor of Pathology in the University of Minnesota; and J. S. McCartney, M.D., Professor of Pathology in the University of Minnesota. Seventh Edition. 1,008 pages with 529 illustrations and 5 plates in color. Philadelphia: Lea and Febiger, 1952. Price $12.00.

Within some 980 pages of actual subject matter, the authors have compiled a highly readable and well organized work on general pathology. The subject matter, especially in the first 200 pages, differs little from that of the corresponding portion of the preceding edition, but the deletion of some of the old references and addition of references of recent date reflect effort to bring the text up to date.

The first eight chapters, dealing with basic pathologic phenomena, are presented in a logical, stimulating manner. The sections on tuberculosis and venereal diseases are particularly good. The section on diseases of the urinary system clearly reflects Dr. Bell's acknowledged position as an authority on this subject.

Special comments are given with the references at the end of each section so that further investigation of a particular aspect of the disease under consideration is facilitated.

Generally speaking, there is a sufficiency of photographs of gross specimens, as well as photomicrographs. The photomicrographs are excellent. Clinicopathologic correlation is generally very well integrated into the discussion of the various disease processes.

Most of the tumors are discussed in a special chapter.

No section, not even a brief one, is devoted specifically to diseases of the skin, but this is a not uncommon finding in textbooks of general pathology.

This text would seem to be not only a highly satisfactory text for the student, but also a valuable addition to the practitioner's library.

The Treatment of Injuries to the Nervous System. By Donald Munro, M.D., F.A.C.S., Assistant Professor of Neurosurgery, Harvard University Medical School. 284 pages, illustrated. Philadelphia: W. B. Saunders Company, 1952. Price $7.50.

Writing for the general practitioner and general surgeon, the author proposes to offer a rational guide to the management of all cases of injury to the nervous system. The book represents the extensive experience of the author and his views in general are orthodox and acceptable. Many neurosurgeons would take issue with specific items in this monograph such as the dogmatic statement that every patient who has sustained a brain injury must be kept in bed two weeks after the intracranial pressure has returned to normal. General experience in World War II would refute this view. The author also tends to negate the value of tracheotomy as an adjunct in the treatment of severe brain injuries, although it is a widely accepted practice, especially when there is associated maxillofacial injury.

There are chapters in addition to those on brain and spinal cord injuries, concerning injuries to cranial nerves, spinal nerve roots, peripheral nerves, autonomic nervous system and a chapter on the effect of spinal anesthesia on the central nervous system. These latter subjects are covered in brief but adequate outline fashion. They are followed by a detailed description of the technic of the various neurosurgical procedures which the general surgeon might be called upon to do in an emergency, such as exploratory trephination, subtemporal decompression, evacuation of epidural hemorrhage, and debridement of compound wounds of the skull and spine.

An interesting and thought-provoking chapter is provided on the cost of medical care in paraplegia, with suggestions as to how it can be modified by rehabilitation services. This is the first time the reviewer has encountered a consideration of the financial aspect of injury or disability incorporated in a medical text. The author concludes with a charge to the hospital trustees and staff concerning their responsibility for the provision of adequate facilities for modern care of patients with injuries to the nervous system. The monograph is a worth while guide for the many general practitioners and general surgeons who handle patients with injuries to the nervous system.

The Diagnosis of Nervous Diseases. By the Late James Purves-Stewart, K.C.M.G., C.B., M.D. Edin., F.R.C.P., Consulting Physician to Westminster Hospital to the West End Hospital for Nervous Diseases and to the Royal National Orthopaedic Hospital, and C. Worster-Drought, M.A., M.D. Cantab., F.R.C.P., Physician to the West End Hospital for Nervous Diseases. Tenth Edition. 962 pages, illustrated. Baltimore: The Williams & Wilkins Company, 1952. Price $10.00.

Two general types of approach are used in writing

textbooks of neurology. The first is a systematic consideration of diseases of the various divisions of the nervous system such as diseases of the peripheral nerves, diseases of the meninges, diseases of the cerebral cortex, and so on. The second type of text approaches diseases of the nervous system from the standpoint of syndromes or signs and symptoms. The two approaches are not mutually exclusive, and for this reason volumes such as this one are very useful supplements to textbooks having the "systematic" approach. There is a lengthy and complete discussion of all of the major and many of the minor presenting signs and symptoms in neurology. It is interestingly written, well illustrated and contains a voluminous bibliography.

Books Received

Laboratory Technique in Biology and Medicine. By E. V. Cowdry, Research Professor of Anatomy and Director Wernse Cancer Research Laboratory, Washington University, St. Louis. Third Edition. 382 pages. Baltimore: The Williams & Wilkins Company, 1952. Price $4.00.

Essentials of Dermatology. By Norman Tobias, M.D., Associate Clinical Professor of Dermatology, St. Louis University. Fourth Edition. 596 pages with 186 figures and 6 subjects in color on 3 plates. Philadelphia: J. B. Lippincott Company, 1952. Price $6.00.

Research in Endocrinology. By August A. Werner, M.D., Assistant Professor of Internal Medicine, St. Louis University School of Medicine. Edited by Al R. Schmidt, City Editor, Belleville Daily Advocate, Belleville, Illinois. 285 pages with illustrations. St. Louis: Dr. August A. Werner (403 Humboldt Building), 1952. Price $5.00.

Gynecologic and Obstetric Pathology. With Clinical and Endocrine Relations. By Emil Novak, A.B., M.D., D.Sc. (Hon., Trinity College, Dublin; Tulane), F.A.C.S., F.R.C.O.G. (Hon.), Assistant Professor Emeritus of Gynecology, The Johns Hopkins Medical School. Third Edition. 595 pages with 630 illustrations, 19 in color. Philadelphia: W. B. Saunders Company, 1952. Price $10.00.

The Esophagus and Its Diseases. By Eddy D. Palmer, M.D., F.A.C.P., Lieutenant Colonel, Medical Corps, United States Army; Chief, Gastrointestinal Section, Walter Reed Army Hospital; Consultant in Gastroenterology to the Surgeon General. 553 pages with illustrations by Phyllis Anderson, some in color. New York: Paul B. Hoeber, Inc., 1952. Price $15.00.

Pharmacology in Clinical Practice. By Harry Beckman, M.D., Director, Departments of Pharmacology, Marquette University Schools of Medicine and Dentistry; and Consulting Physician, Milwaukee County General Hospital and Columbia Hospital, Milwaukee, Wisconsin. 839 pages with 152 figures. Philadelphia: W. B. Saunders Company, 1952. Price $12.50.

Physical Foundations of Radiology. By Otto Glasser, Professor of Biophysics and Head of Department of Biophysics, Cleveland Clinic Foundation, Cleveland, Ohio; Edith H. Quimby, Associate Professor of Radiology (Physics), College of Physicians and Surgeons, Columbia University, New York; Lauriston S. Taylor, Chief, Atomic and Radiation Physics Division, National Bureau of Standards, Washington, D. C.; and J. L. Weatherwax, American Oncologic Hospitals and Graduate School of Medicine, University of Pennsylvania, Philadelphia. Second Edition. 581 pages with illustrations. New York: Paul B. Hoeber, Inc., 1952. Price $6.50.

Cardiac Therapy. By Harold J. Stewart, M.D., Associate Professor of Medicine, Cornell University Medical College, New York; Attending Physician, New York Hospital; Head of Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center. 622 pages with illustrations. New York: Paul B. Hoeber, Inc., 1952. Price $10.00.

Viral and Rickettsial Infections of Man. Edited by Thomas M. Rivers, M.D., Director of the Hospital, The Rockefeller Institute for Medical Research. Second Edition. 719 pages with 90 illustrations, including 7 plates in color. Philadelphia: J. B. Lippincott Company, 1952. Price $7.50.

Rypins' Medical Licensure Examinations. Topical Summaries and Questions Edited by Walter L. Bierring, M.D., F.A.C.P., M.R.C.P., Edin. (Hon.), Iowa State Commissioner of Health. With the collaboration of a Review Panel. Seventh Edition. 856 pages. Philadelphia: J. B. Lippincott Company, 1952. Price $8.00.

A Method of Anatomy. Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), Professor of Anatomy in the University of Toronto. Fifth Edition. 870 pages with illustrations. Baltimore: The Williams and Wilkins Company, 1952. Price $7.00.

Massage and Remedial Exercises in Medical and Surgical Conditions. By Noel M. Tidy, Member of the Chartered Society of Physiotherapy; T.M.M.G. Ninth Edition. 519 pages with illustrations. Baltimore: The Williams and Wilkins Company, 1952. Price $6.00.

Electrotherapy and Actinotherapy. A textbook for student physiotherapists. By E. B. Clayton, M.B., B.Ch. (Cantab.), Consulting Physician to the Physical Treatment Department, King's College Hospital, London. Second Edition. 452 pages with illustrations. Baltimore: The Williams & Wilkins Company, 1952. Price $4.00.

Malignant Disease and Its Treatment by Radium. By Sir Stanford Cade, K.B.E., C.B., F.R.C.S., M.R.C.P., F.F.R. (Hon.), Surgeon, Westminster Hospital; Consulting Surgeon, Mount Vernon Hospital and Radium Institute; Lecturer in Surgery, Westminster Medical School and formerly Examiner in Surgery, University of London; Member of the Council, late Hunterian Professor, Arris and Gale Lecturer and member of the Court of Examiners, Royal College of Surgeons of England; Hon. Member American Radium Society; Consultant in Surgery to the Royal Air Force. With a Foreword by Sir Ernest Rock Carling, F.R.C.P., F.R.C.S., F.F.R., Consulting Surgeon and Vice-President, Westminster Hospital. Volume IV. Second Edition. Baltimore: The Williams and Wilkins Company, 1952. Price $12.50.

Sterility: Its Cause and Its Treatment. By J. Jay Rommer, A.B., Ph.G., M.D., A.I.C.S., Gynecological Staff, Beth Israel Hospital, Newark, New Jersey; Member American Genetics Association, American Society for the Study of Sterility, New Jersey Neuropsychiatric Association, and Fellow, New Jersey Obstetric and Gynecological Society. 424 pages with illustrations. Springfield: Charles C. Thomas, Publisher, 1952. Price $12.50.

Applied Physiology. By Samson Wright, M.D., F.R.C.P., John Astor Professor of Physiology, University of London, Middlesex Hospital Medical School. With the collaboration of Mantague Maizels, M.D., F.R.C.P., Professor of Clinical Pathology, University of London, University College Hospital Medical School; and John B. Jepson, M.A., B.Sc., D Phil., A.R.I.C., Senior Lecturer in Biochemistry, Courtauld Institute of Biochemistry, Middlesex Hospital Medical School. Ninth Edition. 1190 pages with illustrations, some in color. New York: Oxford University Press, 1952. Price $9.00.

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Dr. E. W. Cullipher

A MESSAGE FROM THE CHAIRMAN OF THE GENERAL ARRANGEMENTS COMMITTEE

A Welcome to the 1952 Meeting in Miami

For the fourth time, the Dade County Medical Association is proud to act as host to the Southern Medical Association in November. We will also be honored by the installation of our own Dr. Walter C. Jones as incoming president. Our Association was previously so honored, some years ago, by the election of Dr. James M. Jackson, as president of your distinguished body.

You are all interested in the problems and progress of free enterprise in medicine. We believe you will find some of both in the Miami area, one of this country's most rapidly growing communities. Our population has doubled twice in the last two decades, and that rate of increase still continues. Present population is estimated at about 700,000. This growth, together with the influx of nearly a million tourists each year, indicates something of the problems of medical facilities in the Miami area.

The newest medical school in the United States has just been opened in Miami this fall as part of the University of Miami. This objective was finally accomplished through the combined efforts of the State Legislature, County, City and University officials, Dade County Medical Association, citizens groups and many others.

Hospital facilities in Dade County include some 2,200 beds in fourteen hospitals, with new construction this year providing 500 additional beds.

As General Chairman, I am greatly indebted to the members of the Dade County Medical Association whose loyal efforts have made this meeting possible and, we hope, a complete success. The Woman's Auxiliary also has played its usual efficient part.

Our most hearty welcome goes out to you, not only to the sessions but also to the social and recreational activities which time permits. We hope many of you remain after the meeting for such inspection or recreations as are not possible while the official sessions are in progress.

E. W. CULLIPHER, M.D.
General Chairman

Miami, Florida, September 10, 1952

Downtown Miami from the air, the bayfront area. The flat white building in lower center is the Miami Auditorium in the north end of Bayfront Park. The Auditorium is general headquarters and here will be registration, scientific and technical exhibits, and some meetings. Other meetings will be in the Library in the south end of the park and in hotels along Biscayne Boulevard. The tall buildings facing Biscayne Boulevard are the bayfront hotels and other tall buildings in the picture are hotels and office buildings. In lower left hand corner are the docks for fishing boats.

MIAMI — WHERE WE MEET

MIAMI*

Beyond the call of professional duty, it is always of interest to see a part of the great American scene which is different from all the other places.

These are the things that make Miami different:

It is the farthest south metropolitan area in the United States, some 600 miles farther south than Los Angeles; 300 miles farther south than Cairo, Egypt; about even with Karachi, India.

In Miami, you are closer to Cuba than to Jacksonville; closer to the West Indies and Yucatan, Mexico, than to Birmingham, Alabama; closer to the blue Caribbean Sea and northern South America than to Cleveland or New York.

Miami, center of some 20 municipalities clustered around Biscayne Bay and along the Atlantic ocean, has three waterfronts besides the Miami river. Inland, the city stretches out into the edges of the mysterious Everglades, where the never-conquered Seminole Indians still paddle their dug-outs far back in the cypress swamps.

Miami is the only semi-tropical area in the United States, where winter temperature averages 70 degrees; summer, 79.2, and the only section where tropical vegetation thrives.

In the last 20 years Miami has been the center of the fastest growing area in the United States, with an increase of 242 per cent. Present population of the Miami area is estimated at 690,000.

More than three million tourists a year are now attracted by Miami's climate, far reaching beaches, rec-

*Prepared by Mr. Arthur E. Curtis, Arthur E. Curtis and Associates, Miami, Florida.

Downtown Miami from the air, from the west looking east. Here is shown the Miami River, Biscayne Bay, and two of the causeways across the bay to Miami Beach in the distance.

reational facilities and its amazing number of varied housing accommodations.

The area has some 600 hotels, 250 motels, 5000 apartments and 3000 guest houses. There are more than 3000 restaurants. Miami also is unique in its long-time position as leading airport of entry in the United States for air travellers from foreign countries.

Several thousands of visitors from the Caribbean area and the southern Americas each month see their first view of the United States at Miami. Scores of foreign and domestic passenger and cargo airliners bring into Miami some 1,500,000 travelers and hundreds of tons of inter-American merchandise each year. The International Airport of 3000 acres employs more than 15,000 people.

Miami also is different from other cities in factors affecting health and the treatment of certain ailments. Roger Babson, the well known statistician, who does not live here, claims that Miami is the most healthful city in the nation. Dr. T. E. Cato, Miami's chief public health official, points out Miami's unique minimum of temperature changes and absence of dust, smoke and pollens in the air. These conditions, with the warmth and almost daily sunshine throughout the year, bring to the area many referrals of patients suffering from asthma, hay fever, sinus and cardiac conditions.

The first health seeking visitor to Miami shores was Ponce de Leon himself, who sailed into Biscayne Bay on his voyage which discovered Florida. He was seeking the fabled Fountain of Youth.

NEW MEDICAL SCHOOL

With one of the finest medical and dental centers in the South on which to draw, the University of Miami is opening a college of medicine this fall.

This will be the first medical school in Florida. Only a small number of students, all from this state will be enrolled in the first class. Costs will be borne partly by state funds.

Creation of the college is the culmination of years of effort by the University, by local officials, physicians, dentists and civic leaders.

Heart of the medical center includes these institutions:

Research departments at the University of Miami which are acquiring international attention, particularly in research in virus diseases.

Jackson Memorial Hospital, the largest hospital in Florida, with 677 beds, many of which will be available for use of the students in medical school; Children's Cardiac Home and Miami Heart Institute.

The Blood Bank of Dade County, which has scored such success in blood grouping and Rh typing serums, that distribution is on a world wide scale. A foundation is supported by the blood bank with more than $200,000 annually for pure research.

Variety Children's Hospital, which specializes in treating poliomyelitis so well that last year violent cases were reduced to 15 per cent in comparison to a national average of more than 25 per cent.

The Dade County Cancer Institute which has achieved international recognition for its work in cytology and cell research.

Dade County Dental Research Clinic, unique in the United States, which provides the best possible dental care without charge to indigent patients, also courses leading to diplomas for dental assistants and formal instruction for dental technicians.

Significant is the exceptionally large number of specialized physicians and surgeons in the area. More than 150 certified specialists are listed.

BEGINNINGS OF MIAMI

A woman of strong will and a sprig of orange blossoms; two men of great pioneering courage: these three started Miami on the way to fame, 55 years ago. Since then, Miami has grown from a sleepy fishing village in the sand and mangrove swamp to its skyscrapers of today.

The woman was Mrs. Julia D. Tuttle, native of Cleveland, Ohio. She owned 640 acres of land along the bay and river in what is now downtown Miami. She settled here in 1891.

The two men were William B. Brickell, who came here in 1870 and owned much land south of the river; and Henry M. Flagler, who built the Florida East Coast railway and many hotels.

Mrs. Tuttle made many efforts to have Flagler build his railroad to Fort Dallas, where Miami is today. Her big chance came with the great freeze of 1895. All fruit and vegetables north of Miami were destroyed, ruining hundreds of small growers.

She picked orange blossoms, fruit and vegetables and sent them to Flagler at St. Augustine. She proved to him that the frost had not touched Miami.

Flagler and others took his special train to West Palm Beach where his railroad ended, then a boat to Fort Lauderdale where Mrs. Tuttle met them with horse and wagon.

In Miami at Fort Dallas, Flagler looked over the village, river and beautiful bay. Before midnight he agreed to extend his railroad here, build a hotel, a freight and passenger depot and to lay out the city of Miami. In return Julia Tuttle and William Brickell gave half of their land to Flagler.

That was the birth of Miami.

Mrs. Tuttle thought of Miami as a center of citrus growing, Brickell thought of a manufacturing future, Flagler of winter tourists.

Each one was right.

Rich and famous people began to discover South Florida. But almost from its birth, the new city was tuned to hard knocks. Three years after it received its charter, Miami was swept by yellow fever. But it did not stop. During the long months of quarantine, the settlers paved streets and dug wells.

By 1925, the infant city was a lusty adolescent, headstrong, foolish and great.

That was the year of the great boom, when real estate was king and every Miamian a millionaire on paper. And 1926 was the year of the great headache. For that year, the bubble burst.

In September, a hurricane roaring up from the Caribbean, blew away the last vistage of real estate madness, and left a sobered city to rebuild with common sense.

But during the following years Miami was forging its greatness. The University of Miami had come into being. Coral Gables was born. Miami Beach was building its siren reputation as a vacation city. Miami was linked by air with Latin America.

The depression hit Greater Miami, but still it grew. By 1941 it reached from Miami Shores to South Miami.

Then came Pearl Harbor. Miami filled with 90,000 soldiers and sailors. The harbor crowded with ships; office buildings, hotels, even night clubs were turned to the uses of war. War plants sprang up.

Then came peace and Miami's adolescent years were over. She was more than a tourist city. She was an industrial infant in a potent agricultural state. Miami was a great port, and leading air gateway between the Americas. She was a city that needed new clothes, new homes, thousands of them, new facilities at its now great University of Miami, new school buildings, new streets.

Miami was crowded but beginning to shift and change to accord with its new size. New homes by thousands were in the building. There were more and better facilities for tourists.

Now Miami again is gearing for greatness. In ten years it will be a city of a million people, a world-known port of both sea and air.

THE STORY OF MIAMI BEACH

This amazing city of half a thousand white towers by the blue sea started as a coconut grove some thirty years ago. Now it is America's leading winter resort.

After the Spanish explorers and the Seminoles, first human activity on these sandy shores was the bringing of shiploads of coconuts from the West Indies by New Jersey developers.

One of them, John S. Collins, grew vegetables there among the mangrove swamps after the coconuts failed. To carry his products to Miami, Collins dug a

canal through the swamp from his farm to Biscayne Bay. This now is the Collins Canal along Dade Boulevard.

Collins started the first bridge across the bay in 1912, but people wondered why a bridge was needed. The pioneer ran out of funds and Carl G. Fisher, builder of the Indianapolis auto racing track, furnished the money to complete it. Fisher, a man of great vision and courage, also brought in equipment and filled in some 1,700 acres of mangrove swamp to make what is now the bay side of Miami Beach. He also cleared the land and built the first streets. First homes were erected by Collins and Fisher. First "enterprise" was a bathing casino at the south end of the beach. Before the bridge was finished a ferry carried bathers and picnickers across the bay. Then they trudged across the sands to the ocean.

Miami Beach became a city in 1915.

The wealthy formed exclusive clubs. More and more of America's leaders came. Magnificent estates were created along the ocean and the bay.

FIVE HUNDRED HOTELS

Miami Beach, now a city of 60,000, has more than 500 modern hotels, over 2,000 apartment houses and thousands of beautiful homes. It houses a winter turnover of 2,500,000 visitors, another 900,000 in summertime.

Featured by famous Lincoln Road, "Fifth Avenue of the South," the city's business districts are among the world's smartest. Its widespread array of shops, theatres, clubs, churches, schools, parks and golden beaches make it a sparkling community of majestic propositions, strikingly impressive.

This is the new Riviera of the Americas.

CORAL GABLES

One afternoon about 30 years ago a retired minister from Massachusetts, searching for health, trudged through the pines on the "high ground" back of Miami.

He settled there, starting a little orange grove. His

Miami, Centering the Hemisphere

boy peddled fruit with a mule cart around the village of Miami.

This boy was George E. Merrick, who began to dream of a fair city on the site of their grove.

Some people smiled when in 1921 he started selling lots in the grove out at the end of a sand road through the woods from Miami. But the lots sold, building began, a noted city planner was employed and Coral Gables became a reality.

Not a building was started until the entire city had been planned on paper. Merrick and his wife pored over maps of Spain, choosing picturesque titles for the wide plazas and boulevards.

The city took its name from the old Merrick homestead of coral rock with gabled peaks, Coral Gables. It still may be seen at 905 Coral Way.

Millions of dollars in properties were sold during the Miami boom of 1924 and 1925. Coral Gables buses traveled throughout the North, bringing sun-seeking buyers to the new South. William Jennings Bryan loosed his silver tongue on Coral Gables' behalf in lectures at Venetian Pool. Rex Beach wrote a book called "The Miracle of Coral Gables."

The thousands of visitors each month who appreciate the striking beauty of the Venetian Pool, do not realize that it once was just a rock quarry which provided walls and street paving for Coral Gables.

Merrick planned the University of Miami and helped finance it. He built the Country Club of Coral Gables, which today has ten per cent of the city's population as members and is a center of Greater Miami gatherings.

The fabulous Biltmore Hotel and Country Club (now a Veterans Administration Hospital) were built by Merrick. Italian gondolas and their gondoliers and a shipload of hand-wrought iron gates, doors and other materials were imported. The tower of the Coral Gables City Hall is a replica of the town hall at Seville, Spain.

Coral Gables, a city of homes of truly tropical beauty, now has a population of some 30,000. Its University of Miami, only 20 years old, has 9,000 students; a new campus is now being developed on a large scale.

Fairchild Tropical Gardens, unique in their huge collection of rare tropical flora, are in Coral Gables. Two public beaches, Matheson Hammock Beach and Tahiti Beach, are on Coral Gables' Biscayne Bay shores.

LATIN AMERICA IN MIAMI

The Romantic Spanish language often is heard in Miami. Four to five thousand Latin Americans have made this city their adopted home. Some seventy thousand others pass through on their air travels each year.

Wealthy Puerto Ricans and Cubans are investing huge sums in Miami properties, also in 90,000 acres of cattle and sugar land in the Everglades.

Latin Americans own an estimated sixty million dollars worth of Greater Miami properties.

There are many Latin American activities. Miami has consulates of all twenty southern Republics; students from many Latin American countries attend the University of Miami, Barry College and other schools; Miami Herald's daily Latin American edition is flown to all southern countries; Spanish is spoken in many stores and hotels; the Pan American League, Miami Chamber of Commerce and other groups concern themselves with Latin American affairs; a branch office of the U. S. Department of State serves Latin American people arriving here daily.

As leading air gateway of the Americas, Miami has become a center of Inter-American culture, travel and trade.

MAN-MADE ISLANDS OF BISCAYNE BAY

Striking and beautiful are the residential islands in Biscayne Bay, but many people do not know that they are man-made.

A permit is obtained, if possible, from the War Department, then the bay bottom is purchased from the state. A bulkhead is built around the borders of the future island, sand is pumped in from the surrounding bay and allowed to settle for about a year before rich top soil is added. Then paved streets are built in symmetrical designs.

Lawns and landscaping grow in a few weeks. Royal palm, coconut and other trees are planted full size. Then the new-born island looks as though it had grown there, like an island made by nature.

The first islands to be constructed (in 1920) were Palm, Hibiscus and Star islands, off MacArthur causeway. The wooded islands paralleling this causeway on the south are made, incidentally, from sand dredged out of the ship channel. The Australian pine trees covering them are entirely self-sown by Nature.

The Venetian Isles stretch across the bay at Fifteenth Street. They are connected by Venetian Way, an attractive drive to Miami Beach.

Finest of all the islands are the four of the Sunset group, off Miami Beach from Twentieth to Thirtieth Streets; and gorgeous LaGorce Island, at the north end of Alton and Bay roads on Miami Beach. No sight-seeing trip is complete without seeing these. Their homesites are valued up to $30,000.

Another series of islands are along the Seventy-ninth Street causeway. Huge Normandie Island contains more than 600 acres. In addition to its many homes, it has hotels, apartment buildings, a business center and a golf course.

The islands are popular for residential purposes. Their advantages include protective building restrictions, accessibility from both Miami and Miami Beach, water-borne breezes, attractive landscaping and waterfront homesites with vistas of beauty, and docks for keeping private boats.

A total of thirty of these man-made islands bask in Biscayne Bay.

MIAMI'S SUB-TROPICAL FRUITS

Seventy kinds of fruit and sixty kinds of vegetables are produced commercially in Florida.

The great bulk of these are marketed during the winter season.

Among exotic, sub-tropical fruits of the Miami area are: the white sapote, loquat, mango, avocado, papaya, rose-apple, egg-fruit, pineapple, surinam cherry, guava, sugar apple, pomegranate, amberella, jujube, monstero deliciosa, banana, sapodilla, cashew, cherimoya, natal-plum, akee and feijoa.

Health grows on trees in Florida. Tree-ripened tropical fruits are rich in vitamins A and C and in the most digestible of sweets, invert sugars, alkaline in reaction.

The papaya, found in most tropical countries, is grown commercially only in the southern part of Florida, Texas and California. It is rich in vitamins A and C and has neither tannin nor starch.

The guava is the summer fruit with highest content of vitamin C.

The mango is another fine exotic fruit. It came from India and the Malay peninsula. It is a long-lived evergreen that grows to considerable size. The mango has no starch, is high in vitamin C, sugar, protein and also contains lecithin, which is used in medicine.

The avocado contains a higher percentage of fat and more protein than any other fresh fruit. The digestibility of its fat is the same as that of butter. Its sugar content is low, but it stands near the top in minerals, vitamins and organic acids.

THINGS TO DO AND SEE

Fishing in the Miami area is not confined to the ocean. You can find about fifty varieties of fish in the fresh water streams, canals and lakes. There is even a greater variety in the bays, sounds and inlets.

Of course, it is in the ocean that you find an amazing array of some 600 kinds of fish, from the gorgeous parrot fish to 1,500 pound sea cows.

Sportiest of all is the bone fish. One hooks these swift fighters in the shallow waters of the sounds. One boats them, if he is very skillful, only after an exciting fight.

Most popular among deep sea fishermen is the graceful sailfish. When hooked he leaps into the air, "walks" the surface on his tail, trying to shake the hook free, then dives, running out as much as 1,200 feet of line. He is a great fight to land, but wonderful sport.

Among the many other varieties of ocean fish are: tuna, tarpon, bonita, barracuda, kingfish, wahoo, sunfish, amberjack, bass, snook, and mackerel.

Among the fish caught in canals and bays are: Trout, bass, pike and perch.

Sight-seeing. In addition to sight-seeing buses which take visitors to most points of interest, sight-seeing boats are docked downtown near the city auditorium in Bayfront Park. These include vessels with glass bottoms so patrons can view the marine life; boats which cruise Biscayne Bay and the Miami River, and one features moonlight cruises. Some make day long cruises, taking guests through inland streams into the vastnesses of the Florida Everglades to see tropical birds, alligators and crocodiles.

Sea Bathing. Surf bathing leads in popularity with residents and visitors. There are several hundred small, private, and large public beaches, scores of pools and cabana clubs.

Golf. There are 11 golf courses, public and private, in the Miami area. Ask the Miami Committee about them.

Tropical and Ocean Front Parks. Miami parks are unusual. Crandon Park, largest ocean shore park on the eastern seaboard, is connected with the city by the Rickenbacker causeway. It can be reached from the center of the city by bus or automobile in about twenty minutes. Among its attractions are a zoo, aviary, cabanas, picnic facilities, a miniature railway, tram, pony, boat and other novelty rides. There are showers and dressing rooms and an excellent beach.

Matheson Hammock Park on the mainland, south of Miami, offers bathing in a sheltered lagoon, showers, dressing rooms, facilities for picnicking, boating, bathing and fishing. It contains a natural Florida hammock or jungle, with the trees identified for the benefit of visitors interested in botany.

Greynolds Park, inland, north Miami, has fresh and salt water fishing, canoeing and picnic attractions. It is a favorite with children.

Everglades National Park, about 40 miles south of the city, is the newest and only biological park in the national chain. It can be visited by sight-seeing buses, automobile or by a land-and-water tour under direction of the National Audubon Society. Here one can see the Florida wildlife in a natural habitat.

Fairchild Tropical Garden is a beautifully landscaped showplace containing flora from all parts of the tropical world. It has probably the largest collection of palm trees in the Western Hemisphere. The United States Plant Introduction Garden nearby experiments with imported trees and plants for cultivation in this country.

One unusual tree, the cannon-ball, native of South America, is admired by many visitors at the Fairchild Tropical Garden. It has an exotic bloom on the trunk. The fruit resembles a cannon-ball in size and shape and when ripe explodes, scattering seeds. Another, the sausage tree, has a fruit in size and shape similar to a bologna.

Such showplaces as the Parrot Jungle, where gorgeously colored parrots and macaws fly at will in a natural hammock; the Orchid Jungle, where rare plants bloom as in their native countries, and the Rare Bird Farm, which has more than a hundred varieties of birds, draw many visitors. Tropical Hobbyland, also has a large collection of animals and birds, and Musa Isle and Coppinger's Pirate Cove are Seminole Indian villages featuring alligator wrestling.

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Dr. Lucien A. LeDoux ..... New Orleans, Louisiana
*Dr. Oscar B. Hunter ..... Washington, D. C.
Dr. Hamilton W. McKay ..... Charlotte, North Carolina
Dr. Curtice Rosser ..... Dallas, Texas

*Deceased.

PROGRAM, SOUTHERN MEDICAL ASSOCIATION

Forty-Sixth Annual Meeting, Miami, Florida

November 10-13, 1952

PROGRAM

The opening assembly, general session, sections, allied and visiting associations, scientific and technical exhibits and motion pictures, which compose the program for the Miami meeting, are as follows, the complete preliminary program beginning on page 995.

Opening Assembly
General Session
Scientific Exhibits
Motion Pictures
Section on General Practice
Section on Medicine
Section on Gastroenterology
Section on Neurology and Psychiatry
Southern Electroencephalographic Society
Section on Pediatrics
Section on Pathology
College of American Pathologists, Southeastern and South Central Sections
Section on Radiology
Section on Dermatology and Syphilology
Section on Allergy
Section on Physical Medicine and Rehabilitation
Section on Industrial Medicine and Surgery
Section on Surgery
Section on Orthopedic and Traumatic Surgery
Section on Gynecology
Section on Obstetrics
Section on Urology
Section on Proctology
Section on Ophthalmology and Otolaryngology
Association for Research in Ophthalmology
Section on Anesthesiology
Section on Public Health
Section on Medical Education and Hospital Training
American College of Chest Physicians, Southern Chapter
Woman's Auxiliary
Technical Exhibits

WHO MAY ATTEND

All scientific activities, meetings and exhibits, at the Miami meeting will be available to physicians who are members in good standing of their local and state medical societies. Those not members of the Southern Medical Association will show membership card evidencing membership in their local and state societies. All scientific meetings and exhibits will be available to residents, interns, senior and junior medical students, technicians and nurses. There is no registration fee at Southern Medical Association meetings.

DADE COUNTY MEDICAL ASSOCIATION

Again the Dade County Medical Association is privileged to welcome the Southern Medical Association to the Miami area. This year the facilities for the visiting physicians and the scientific activities of the annual meeting are outstanding in convenience, quality and number. Arrangements are complete for social and recreational enjoyment.

The Dade County Medical Association is entering its fiftieth year of existence. The membership has increased from seven to seven hundred and thirty. Every branch of medicine is represented by properly qualified and well trained men to meet the needs of this cosmopolitan and fast growing metropolis. Since the Southern Medical Association met for the first time in Miami, November 1929, the population of the Miami area has increased almost 250 per cent with a present population estimated at 690,000.

The officers of the Association are: Dr. Ralph S. Sappenfield, President; Dr. Ralph W. Jack, President-Elect; Dr. Benjamin G. Oren, Vice-President; Dr. Nelson Zivitz, Secretary; Dr. Raymond L. Evans, Treasurer; and Dr. Franz H. Stewart, Editor of the Bulletin. The Executive Secretary is Mr. John L. Rhodes, with offices at 603 Dade Commonwealth Building, Miami.

It is the sincere wish and belief of the Dade County Medical Association that all will enjoy this 1952 meeting in Miami.

RADIO and TELEVISION

The Southern Medical Association, collaborating with the Dade County Medical Association, Miami, will be on the air during the Miami meeting at three of the local radio stations:

Station WQAM, Monday, Tuesday and Wednesday, November 10, 11 and 12, 1:00-1:05 p.m.

Station WTVJ Television, Wednesday, November 12, 10:00-10:30 a.m.

Station WVCG, Monday, Tuesday and Wednesday, November 10, 11 and 12, 9:30-9:45 a.m.

Dr. L. W. Dowlen, Miami, is Chairman of the Radio Committee in charge of the program for these broadcasts.

ASSOCIATION DINNER and DANCE

Wednesday, November 12, 7:00 p.m.

Jackie Heller's Dinner Key Terrace, Dinner Key

The Association dinner which has proved such an interesting feature at two previous meetings will be held at Jackie Heller's Dinner Key Terrace at Dinner Key. There will be an interesting program, a portion of which will be the election of officers and the installation of Dr. Walter C. Jones, Miami, as President. The dinner and the program will be followed by a dance. There are adequate facilities at Dinner Key for the dinner and for dancing. Jackie Heller's Dinner Key Terrace is located right on Biscayne Bay, a lovely and unusual setting, just the setting for this official entertainment feature.

WOMEN PHYSICIANS

The women physicians of the Miami area take pleasure in welcoming all women physicians attending the Southern Medical Association meeting. For the early arrivals on Sunday, November 9, Dr. Jean Jones Perdue, Chairman of Women Physicians of the Southern Medical Association, is planning a tea to be given at her home, 6421 North Bay Road, Miami Beach, at 5:00 p.m. The thirty-eighth annual meeting and dinner is planned for Tuesday evening, November 11, 7:00 p.m. A desk will be set up in the registration area where the women physicians will be welcomed, and where arrangements for the dinner and other local events may be made.

Dr. Rose E. London, 1085 Dade Boulevard, Miami Beach, is Chairman of the Local Committee for Women Physicians, and associated with her are Dr. Martiele Turner, Coral Gables, Dr. Iva C. Youmans, Miami, Dr. Ella M. Hediger, Miami, Dr. Ruth W. Rumsey, Miami, and Dr. Jean Jones Perdue, Miami Beach.

AFTER MIAMI, HAVANA and/or NASSAU

The Miami meeting offers a splendid opportunity for physicians and their wives to see Havana and/or Nassau. The Association is not having an official tour this year to Havana

or Nassau as it did at the previous meetings in Miami, 1929, 1946 and 1948. There are a number of reliable touring services in Miami and any who are attending the Association meeting will have no difficulty in arranging for side trips to Havana and/or Nassau. Among the reliable services are United Tours, 329 East Flagler Street (McAllister Hotel) and American Express, 330 East Flagler Street (across street from McAllister Hotel).

ALUMNI REUNIONS

At the time this program went to press, arrangements had been made for the following:

Emory University School of Medicine, Emory University, Georgia, Tuesday, November 11, 7:00 p.m.

Vanderbilt University School of Medicine, Nashville, Tennessee, Tuesday, November 11, 7:00 p.m.

GOLF TOURNAMENT

The twenty-ninth annual golf tournament for men of the Southern Medical Association will be held, weather permitting, at the Riviera Country Club, 1155 Blue Road, Coral Gables, on Monday and Tuesday, November 10 and 11. Tournament play will consist of one eighteen hole round of medal play and entrants are privileged to play any time Monday or Tuesday. The score cards for the tournament round will be obtained from the Committee and turned in after the tournament round of play. It will facilitate handicapping if participants will bring a statement of their club handicap with them. Each golfer is requested to wear the official badge for identification when visiting the golf club. All golfers are urged to bring their own clubs, although a limited supply of excellent rental clubs is available.

The three major trophies to be played for this year, which must be won three times by the same golfer, are the *Daily Oklahoman* and *Times* Cup, in play since 1938, for low gross, junior class (physicians under 50 years of age); the *Miami Daily News* Cup, in play for the first time, for low gross, senior class (physicians over 50 years of age); and the *Dallas Morning News* Cup, in play since 1925, handicap for low net.

All participants in this golf tournament must be properly registered at the Southern Medical Association registration headquarters and wear the official badge to be accorded the privilege of the Riviera Country Club. Greens fee $5.00.

Dr. Karl W. Vetter, 227 Aragon Avenue, Coral Gables, is Chairman of the Golf Committee, and associated with him are Dr. Charles R. Burbacher, Dr. Colquitt Pearson, Dr. Milton M. Coplan and Dr. John Elliott.

LUNCHEON CLUBS

The following luncheon clubs of Miami, Miami Beach and Coral Gables areas extend a most cordial invitation to all members in attendance upon the Southern Medical Association meeting who are members of these clubs in their home city to have lunch with them:

TUESDAY, November 11
Miami Civitan Club, McAllister Hotel, 12:15 p.m.
Miami Beach Rotary Club, Delano Hotel, 12:15 p.m.
Miami Beach Optimist Club, Sea Gull Hotel, 12:15 p.m.
Coral Gables Kiwanis Club, Coral Gables Country Club, 12:15 p.m.
Coral Gables Civitan Club, Coral Gables Country Club, 7:00 p.m.

WEDNESDAY, November 12
Miami Beach Lions Club, Shelborne Hotel, 12:15 p.m.
Coral Gables Lions Club, Coral Gables Country Club, 12:00 noon.

THURSDAY, November 13
Miami Rotary Club, Columbus Hotel, 12:15 p.m.
Miami Lions Club, McAllister Hotel, 12:15 p.m.
Miami Optimist Club, Robert Clay Hotel, 12:15 p.m.
Miami Beach Kiwanis Club, Shelborne Hotel, 12:15 p.m.
Coral Gables Optimist Club, Coral Gables Country Club, 12:15 p.m.

FRIDAY, November 14
Miami Kiwanis Club, Columbus Hotel, 12:15 p.m.
Coral Gables Rotary Club, Coral Gables Country Club, 12:15 p.m.

HOTELS

The local Executive Committee for the Miami meeting has decided that no hotel will be designated as general hotel headquarters. All reservations will clear through the HOUSING BUREAU, Southern Medical Association Meeting, 320 N. E. Fifth Street, Miami 32, Florida. In writing to the Bureau, one should give the type and price of accommodations desired, the names of those who will occupy the room or rooms requested, the day and time of arrival.

The Miami meeting will be held on Monday, Tuesday, Wednesday and Thursday, November 10-13, the first session beginning at 10:30 a.m. Monday. Here follow the names of some of the downtown hotels in Miami that will furnish accommodations: Alcazar, Biscayne Terrace, Columbus, Dallas Park, Everglades, McAllister, Miami Colonial, Patricia, Plaza, Robert Clay and Towers.

See insert between pages 974 and 975 for picture of downtown hotels, their location and a form for making hotel reservations.

ASSOCIATION HEADQUARTERS

Registration, Information, Mail, Etc.

Municipal Auditorium, Bayfront Park

The Registration and Information Headquarters will be located at the Municipal Auditorium in Bayfront Park and will open Monday, Tuesday, Wednesday and Thursday, November 10-13, at 8:00 a.m. and will close at 6:00 p.m. on Monday, Tuesday and Wednesday and at 2:00 p.m. on Thursday. Here will be issued badges and programs; and matters concerning dues, changes of address, errors, etc., will be given attention. Competent persons will be in charge to give any information or serve the physicians in any way possible.

Physicians are urged to register before attending the sessions.

Members of the Association are requested to bring their membership receipt (blue) card and present it when registering. This will greatly facilitate the registration.

EXCERPTS FROM THE BY-LAWS

Sec. 3. Except by special order, the order of exercises, papers and discussions as set forth in the official program will be followed from day to day until it has been completed, and all papers omitted will be recalled in regular order.

Sec. 4. No address or paper before the Association, or any of its sections, except the addresses of the President and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than one time on any subject, provided each essayist be allowed ten minutes in which to close the discussion.

Sec. 5. All papers before the Association, or any of its sections, shall be the property of the Association. Each paper shall be deposited with the Secretary when read, or within ten days thereafter.

Sec. 6. No paper shall be published except upon recommendation of the Publication Committee, which shall consist of the Secretary as Chairman, with the Chairman and Secretary of each section as its constant members.

TECHNICAL EXHIBITS

Municipal Auditorium, Bayfront Park

The highest type group of technical, sometimes called commercial, exhibits may be expected at the Miami meeting, attended by a group of specialized and courteous representativs who are concerned only with being of service to those physicians attending the meeting.

A policy adopted thirteen years ago for making the exhibits more worthwhile has been generally accepted by the various commercial houses, and personnel of the various booths will be found willing at every turn to keep the exhibits on a dignified plane.

The policy is concerned with (a) *selling*, (b) *samples* and (c) *souvenirs*, and for clarification the following short explanation is given: (a) the atmosphere of the exhibit is to be that of show and demonstration and not of selling. Should a physician wish to purchase an item on display it is permis-

sible for the exhibitor to take his order for the item either for delivery from the booth or to be sent later—the technical exhibits are for the benefit of the attending physicians. (b) Samples and literature may be displayed within the exhibit and may be given out at the exhibit when the desire for them is indicated. It is permissible for those calling at exhibits to have their names taken for samples and literature to be sent from the home office of the exhibitor. (c) Souvenirs of any description cannot be given away at any exhibit or at any point in the hotels or meeting places.

The object is to make the Technical Exhibits more definitely a scientific and educational part of the Southern Medical Association meetings and therefore worth definitely more to attending physicians.

See page 1012 for names of firms who will exhibit at the Miami meeting.

All are urged to visit the Technical Exhibits.

OPENING ASSEMBLY

Public Session

Monday, November 10, 10:30 a.m.

McAllister Hotel

E. W. Cullipher, General Chairman, Miami, presiding.

Invocation, REV. FRED E. COLE, Pastor, Coral Gables Congregational Church, and President, Miami Ministerial Association, Miami.

Address of Welcome, RALPH S. SAPPENFIELD, President, Dade County Medical Association, Miami.

Address of Welcome, ROBERT B. McIVER, President, Florida Medical Association, Jacksonville, Fla.

Response to the Addresses of Welcome, ALPHONSE McMAHON, First Vice-President, Southern Medical Association, St. Louis, Mo.

Introduction of Guests at Speakers Table.

Alphonse McMahon, First Vice-President, St. Louis, Mo., presiding.

Address: "The Southern Medical Association: Its Past and Future," R. J. WILKINSON, President, Southern Medical Association, Huntington, W. Va.

R. J. Wilkinson, President, presiding.

Address: "The World Medical Association and the American Medical Association," LOUIS H. BAUER, President, American Medical Association, New York, N. Y. Introduced by HAROLD RAND, Miami.

Address: HON. SPESSARD L. HOLLAND, U. S. Senator from Florida, Bartow, Fla. Introduced by WALTER C. JONES, Miami.

Announcements.

Adjournment.

GENERAL SESSION

Wednesday, November 12, 8:00 p.m.

Jackie Heller's Dinner Key Terrace, Dinner Key

R. J. Wilkinson, President, presiding.

Call to order.

Report of Council, R. L. Sanders, Chairman, Memphis, Tenn.

Report of Nominating Committee, R. L. Sanders, Chairman, Memphis, Tenn.

Election of Officers.

Installation of Incoming President, Walter C. Jones, Miami, Fla.

Presentation of Past President's Medal to R. J. Wilkinson, Huntington, W. Va., by R. L. Sanders, Chairman of the Council, Memphis, Tenn.

Adjournment.

SCIENTIFIC EXHIBITS

Municipal Auditorium, Bayfront Park

Exhibits will be open Monday, Tuesday and Wednesday, November 10, 11 and 12 from 8:00 a.m. to 6:00 p.m. and on Thursday, November 13 from 8:00 a.m. to 2:00 p.m.

Cancer

J. ERNEST AYRE, Dade County Cancer Institute, Miami, Fla.: Cancer Cytology in Medical Practice.

LEFFIE M. CARLTON, JR., Tampa, Fla.: Cancer of Lung.

JOHN E. GREGORY, Pasadena, Calif.: Pathogenesis of Cancer.

BENJAMIN G. OREN, DONALD F. MARION and ALFRED G. LEVIN, Miami, Fla.: How Accurate is X-Ray in Gastric Cancer Diagnosis?

GEORGE BENTON SANDERS, University of Louisville School of Medicine, Louisville, Ky.: Bilateral Mastectomy for Breast Cancer.

PARKE G. SMITH and JACK A. McKENZIE, Miami, Fla.: Prostatic Carcinoma: Diagnosis and Therapy.

WESLEY W. WILSON, Tampa, Fla.: Early Skin Cancer.

AMERICAN CANCER SOCIETY, Florida Division, Tampa, Fla.: Cancer of the Colon and Rectum.

General Practice

D. G. MILLER, JR., Morgantown, Ky.: Rural General Practice Without a Hospital.

Medicine

WILLIAM P. BOGER, GILBERT M. BAYNE, SALVATORE CARFAGNO and JULINA GYLFE, Norristown State Hospital, Norristown, Pa.: Oral Penicillin.

JOHN B. FLOYD, JR. and FRANKLIN B. MOOSNICK, Lexington, Ky.: Pancreatitis Treatment Based on Pathogenesis.

F. HERNANDEZ, REUBEN ROCHKIND, M. HALPERN, M. BLINSKI, BRUCE HOGG, L. LEMBERG, HARRY ELDEN and RICHARD LEVY, National Childrens Cardiac Hospital, Miami, Fla.: Cardiac Catheterization.

OSCAR B. HUNTER, JR. and PAUL KIERNAN, Georgetown University School of Medicine, Washington, D. C.: ACTH and Cortisone in Blood Dyscrasias.

CARLOS P. LAMAR, Jackson Memorial Hospital, Miami, Fla.: The Office Management of Ambulatory Diabetics.

THADDEUS D. LABECKI, Heart Disease Control Unit; Mississippi State Board of Health, Jackson, Miss.: Application of Dark Field Microscopy in the Study of Serum Lipids.

L. B. NEWMAN, Veterans Administration Hospital, Hines, Ill.: Physical Medicine and Rehabilitation in Acute Myocardial Infarction.

E. STERLING NICHOL, WILLIAM C. PHILLIPS and VALENTINE E. JENKINS, Jackson Memorial Hospital, Miami, Fla.: Anticoagulant Therapy in Cardiovascular Disease.

GEORGE F. SCHMITT, JR., Veterans Administration Hospital, Miami, Fla.: Therapy of Heart Failure.

RICHARD E. STRAIN and IRWIN PERLMUTTER, Jackson Memorial Hospital, Miami, Fla.: Percutaneous-Cerebral Angiography: Its Clinical Use.

HART E. VAN RIPER, National Foundation for Infantile Paralysis, New York, N. Y.: Management of Poliomyelitis Patients with Respiratory Difficulty.

R. J. WATSON and Associates, New York University College of Medicine, New York, N. Y.; J. W. HOWLAND and Associates, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.; and R. W. CUNNINGHAM, J. J. OLESON and A. C. DORNBUSH, Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.: Newer Aspects of Aureomycin Research.

Gastroenterology

JOE M. BLUMBERG, Colonel, Medical Corps, U. S. Army, and VICTOR M. SBOROV, Walter Reed Army Medical Center, Washington, D. C.: Why Do a Liver Biopsy?

DAVID CAYER and W. E. CORNATZER, Bowman Gray School of Medicine, Winston-Salem, N. C.: Role of Lipotropic Agents in Liver Disease: A Study of Phospholipide Synthesis Using Radiophosphorus.

GORDON McHARDY, New Orleans, La.: Fumagillin, an Amebacidal Antibiotic.

Neurology and Psychiatry

ARNOLD P. FRIEDMAN and THEODORE J. C. VON STORCH, College of Physicians and Surgeons, Columbia University, New York, N. Y.: Studies of 1,000 Patients with Vascular Headaches.

JAMES B. FUNKHOUSER, McGuire Veterans Administration Hospital, Richmond, Va.: Psychiatric Symptoms: Organic Neurological Disease.

BELA HALPERT and WILLIAM S. FIELDS, Baylor University College of Medicine, Houston, Tex.: Intracranial Neoplasms: Primary and Metastatic.

JOSEPH E. MARKEE, Duke University School of Medicine, Durham, N. C.: The Autonomic Nervous System.

JACKSON A. SMITH, Baylor University College of Medicine, Houston, Tex.: The Use of Mebaral® in Alcoholism and in Anxiety.

Pediatrics

AMOS CHRISTIE, JOHN SHAPIRO, J. CYRIL PETERSON and SUSAN WILKES, Vanderbilt University School of Medicine, Nashville, Tenn.: Histoplasmosis: The Disease Spectrum, Differential Diagnosis.

JAMES G. HUGHES and ALBERT HAND, University of Tennessee College of Medicine, Pediatric Division, Memphis, Tenn.: Jet Injection.

HELEN MORTON, G. R. HENNIGAR and LEE E. SUTTON, JR., Medical College of Virginia, Richmond, Va.: Pneumonic Insufficiency in the Newborn.

Radiology

HERBERT C. ALLEN, JR., FRANK J. KELLY and JAMES A. GREENE, Baylor University College of Medicine, Houston, Tex.: Preoperative Diagnosis of the Functional State of Thyroid Nodules Using the Gammagraph.

ELBERT DeCOURSEY, Brigadier General, Medical Corps, U. S. Army, Armed Forces Institute of Pathology, Washington, D. C.: Total Body Ionizing Radiation.

Dermatology

FRANCIS A. ELLIS and WILLIAM R. BUNDICK, University of Maryland School of Medicine, Baltimore, Md.: Dyskeratosis, Benign and Malignant.

JAMES K. HOWLES, Louisiana State University School of Medicine, New Orleans, La.: Dermatrophic Virus Diseases.

FRANCIS H. McGOVERN, Danville, Va., and G. SLAUGHTER FITZ-HUGH, University of Virginia Hospital, Charlottesville, Va.: Herpes Zoster of the Cephalic Extremity.

Allergy

OREN C. DURHAM, Abbott Laboratories Research Division, North Chicago, Ill.: Pollen Prevalence and Pollen-Free Areas.

Surgery

WILLARD BARTLETT, St. Louis University School of Medicine, St. Louis, Mo.: Recurrent Hyperthyroidism.

ROBERT P. GLOVER, THOMAS J. E. O'NEILL and O. HENRY JANTON, Philadelphia, Pa.: Mitral Commissurotomy: Evaluation and Results.

ROY G. KLEPSER and JAMES F. BERRY, Georgetown University School of Medicine, Washington, D. C.: Diagnosis and Surgical Management of Chylothorax.

DONALD W. SMITH, JOHN ELLIOTT, JAMES J. GRIFFITTS and GEORGE T. LEWIS, Medical Research Foundation of Dade County, Miami, Fla.: Continuous Enteral Alimentation.

Orthopedics

MILTON C. COBEY, Georgetown University School of Medicine, Washington, D. C.: Waterproof Plaster.

LEE T. FORD and J. ALBERT KEY, Washington University School of Medicine, St. Louis, Mo.: Cervical Disc Lesions.

J. O. LOTTES, L. J. HILL, S. M. LEYDIG and J. ALBERT KEY, Washington University School of Medicine, St. Louis, Mo.: Medullary Fixation for Fractures of the Tibia.

Gynecology

ROBERT B. GREENBLATT, Medical College of Georgia, Augusta, Ga.: Pre- and Postoperative Study of Patients with Cushing's Disease and Adrenogenital Syndrome.

H. E. NIEBURGS, Medical College of Georgia, Augusta, Ga.: Cytodiagnosis of Functional Disorders and Uterine Carcinoma: A Study of Cell Morphology in Stained Preparations with the Phase Microscope.

Obstetrics

RICHARD H. FISCHER and STANLEY P. McCOLGAN, Research Foundation, Doctor's Hospital, Washington, D. C.: Progesterone Metabolism II: The Excretion of Pregnanediol in Normal Pregnancy.

Proctology

CLAUDE C. TUCKER, Wichita, Kan.: Control of Postoperative Pain in Anorectal Surgery.

Otolaryngology

J. BROWN FARRIOR and RICHARD A. BAGBY, Tampa Municipal Hospital, Tampa, Fla.: Neck Resection in Cancer of the Larynx.

ARTHUR L. JUERS, Miami, Fla.: Management of Deafness.

ROBERT E. RYAN, St. Louis, Mo.: Headache: Its Diagnosis and Treatment.

Anesthesiology

W. RALPH DEATON, JR. and HOWARD H. BRADSHAW, Bowman Gray School of Medicine, Winston-Salem, N. C.: Use of a New Long Lasting Anesthetic Agent in Thoracic Surgery.

SAMUEL M. DODEK and JOSEPH M. FRIEDMAN, George Washington University School of Medicine, Washington, D. C.: The Value and Use of Curare in Obstetrics.

SYLVAN M. SHANE and HARRY ASHMAN, Lutheran Hospital of Maryland, Baltimore, Md.: "Balanced Mixture" Anesthesia.

Public Health

ARTHUR ALFRED SINISCAL, Missouri Trachoma Hospital, Rolla, Mo.: Trachoma in Missouri.

U. S. Air Force

WILFORD F. HALL, Brigadier General, U. S. Air Force Medical Corps, Washington, D. C.: Aero-Medical Evacuation.

General

ARCHIBALD PERRIN HUDGINS, Charleston, W. Va.: Marriage Counselling by Physician.

THOMAS G. HULL, American Medical Association, and ROBERT G. SCHMAL, National Safety Council, Chicago, Ill.: Testing the Drinking Driver.

FLORIDA MEDICAL ASSOCIATON, Jacksonville, Fla.: Public Relations.

MOTION PICTURES

Municipal Auditorium, Bayfront Park

There will be a motion picture program on Tuesday and Wednesday, November 11 and 12, from 9:00 a.m. to 5:30 p.m. In the Official Program for use at the meeting the time the films will be run will be given. There will be a voluntary period each day during which any film on the program may be run upon request.

HERBERT C. ALLEN, JR., FRANK J. KELLY and JAMES A. GREENE, Baylor University College of Medicine, Houston, Tex.: *In Vivo* Outlining of Benign and Malignant Thyroid Nodules, Gammagram.

J. ERNEST AYRE, Dade County Cancer Institute, Miami, Fla.: (1) A Year in the Life History of a Cancer Cell, and (2) Family Physician and Cancer.

ALSTON CALLAHAN, Medical College of Alabama, Birmingham, Ala.: (1) Removal of Orbital Osteoma Through Upper Orbital Root, and (2) Cataract Extraction in the One Eyed Patient.

ANTONIO RODRIGUEZ DIAZ, Department of Thoracic Surgery, General Calixto Garcia Hospital, University of Havana School of Medicine, Havana, Cuba: (1) Surgery of Mitral Stenosis, and (2) Surgery of Peptic Ulcer.

ROBERT P. GLOVER, THOMAS J. E. O'NEILL and O. HENRY JANTON, Philadelphia, Pa.: The Surgery of Mitral Stenosis.

J. LEONARD GOLDNER, Duke University School of Medicine, Durham, N. C.: Rehabilitation in Traumatic Paraplegia.

HERBERT T. HAYES and HARRY B. BURR, Houston, Tex.: One-Stage Abdominoperineal Resection of the Rectum.

JOSEPH E. MARKEE, Duke University School of Medicine, Durham, N. C.: The Autonomic Nervous System.

ROBERT A. MURRAY, Temple, Tex.: Reconstruction of a Severely Injured Forearm.

JAMES R. NIEDER, Delray Beach, Fla.: Cataract Extraction by Erisophake.

PARKE G. SMITH, Miami, Fla.: Translumbar Aortography and the Production of Renal Angiograms.

VETERANS ADMINISTRATION, Department of Medicine and Surgery, Washington, D. C.: Living with Limitations.

SECTION ON GENERAL PRACTICE

Officers

Chairman—Fount Richardson, Fayetteville, Ark.
Vice-Chairman—Walter W. Sackett, Jr., Miami, Fla.
Secretary—Stanley A. Hill, Corinth, Miss.

Hosts from the Dade County Medical Association—Oden A. Schaeffer, R. N. Burch, Sr., Walter W. Sackett, Jr. and T. D. Sandberg.

Presentations limited to twenty minutes with ten minutes for discussion—thirty minute periods.

Wednesday, November 12, 12:00 noon

Luncheon Meeting, Biscayne Terrace Hotel, Panorama Room

1. "The Medical School and General Practice," HOMER F. MARSH, Associate Dean, University of Miami Medical School, Miami, Fla.

Wednesday, November 12, 2:00 p.m.

2. Chairman's Address: "The Doctor's Privileges and His Duties," FOUNT RICHARDSON, Fayetteville, Ark.

3. "Roentgenologic Considerations of Gastro-Intestinal Lesion Causing Hematemesis" (Lantern Slides), ROBERT D. MORETON, Fort Worth, Tex.
   Discussion opened by Stephen W. Brown, Professor of Radiology, Medical College of Georgia, Augusta, Ga.

4. "Office Orthopedics" (Lantern Slides), GUY A. CALDWELL, Professor of Orthopedics, Tulane University School of Medicine, New Orleans, La.
   Discussion opened by R. Beverly Raney, Professor of Orthopedic and Traumatic Surgery, University of North Carolina School of Medicine, Chapel Hill, N. C.

Intermission

5. "Medical Emergencies," JOHN R. BENDER, Winston-Salem, N. C.
   Discussion opened by William H. Anderson, Booneville, Miss.

6. "Results of Three Years Experience with a New Concept of Baby Feeding" (Lantern Slides), WALTER W. SACKETT, JR., Research Associate, Medical Research Department, University of Miami, Miami, Fla.
   Discussion opened by Benjamin M. Cole, Orlando, Fla.

7. "The Diagnosis and Treatment of the Infertile Couple" (Lantern Slides), FRED A. SIMMONS, Instructor in Gynecology, Harvard Medical School, Boston, Mass.

Thursday, November 13, 9:00 a.m.

Election of Officers.

8. "A Basis for Therapy of Common Skin Diseases," GERALD BEDNAR, Oklahoma City, Okla.
   Questions and answers.

SYMPOSIUM AND PANEL DISCUSSION ON ALCOHOLISM, Walter W. Sackett, Jr. and Chet C., an Alcoholic Anonymous, Miami, Moderators.

9. "An Introduction to the Problem of the Alcoholic," LEONARD WEIL, Miami Beach, Fla.

10. "The Philosophy, Principles and Goals of Alcoholics Anonymous," FRED K., an Alcoholic Anonymous, Miami, Fla.

11. "Modern Advances in the Field of Alcoholism," Y. G., an Alcoholic Anonymous, National Committee on Alcoholism, New York, N. Y.

12. "The Use of Antabuse® in the Alcoholic Problem," JOHN J. McANDREW, Miami, Fla.

13. "Psychotherapy in Chronic Alcoholism," JACKSON A. SMITH, Assistant Professor of Psychiatry, Baylor University College of Medicine, Houston, Tex.

SECTION ON MEDICINE

Officers

Chairman—Tom D. Spies, Birmingham, Ala.
Vice-Chairman—George T. Harrell, Winston-Salem, N. C.
Secretary—Vince Moseley, Charleston, S. C.

Hosts from the Dade County Medical Association—Robert M. Harris, S. Charles Werblow, C. Leon Shalloway, A. Daniel Amerise and Max Pepper.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. Chairman's Address: "Degenerative Diseases with Nutritional Interrelationships," TOM D. SPIES, Director, Nutrition Clinic, Hillman Hospital, Birmingham, Ala., and Professor and Head of the Department of Nutrition and Metabolism, Northwestern University Medical School, Chicago, Ill.

2. "Cardiovascular Degenerative Diseases" (Lantern Slides), TINSLEY R. HARRISON, Professor of Medicine, Medical College of Alabama, Birmingham, Ala.
   Discussion opened by Louis F. Bishop, Assistant Clinical Professor of Medicine, New York University Post-Graduate Medical School, New York, N. Y.

3. "Prevention and Treatment of Degenerative Complications of Diabetes Mellitus" (Lantern Slides), CHARLES W. STYRON, Associate in Medicine, Duke University School of Medicine (Durham), Raleigh, N. C.
   Discussion opened by R. W. Rundles, Associate Professor of Medicine, Duke University School of Medicine, Durham, N. C.

Intermission

4. "Capillary Damage as a Complication in Diabetes Mellitus" (Lantern Slides), CHARLES G. ZUBROD, Assistant Professor of Medicine and Assistant Professor of Pharmacology and Experimental Therapeutics, Johns Hopkins University School of Medicine, Baltimore, Md.
   Discussion opened by J. F. A. McManus, Associate Professor of Pathology, University of Virginia Department of Medicine, Charlottesville, Va.

5. "An Evaluation of Pulmonary Insufficiency in Asthma, Pulmonary Fibrosis and Other Types of Chronic Lung Disease" (Lantern Slides), KELLY T. McKEE, Charleston, S. C.
   Discussion opened by W. O. Arnold, Temple, Tex.

6. "Preoperative Evaluation of the Cardiovascular System and the Management of Cardiovascular Complications of Surgery" (Lantern Slides), BRUCE LOGUE, Associate Professor of Medicine, Emory University School of Medicine, Atlanta, Ga.
   Discussion opened by Robert L. McMillan, Associate Professor of Clinical Medicine, Bowman Gray School of Medicine, Winston-Salem, N. C.

Tuesday, November 11, 2:00 p.m.

7. "Osteoporosis and Osteoarthritis," WILLIAM PARSON, Charlottesville, Va.
   Discussion opened by Edward C. Reifenstein, Jr., Oklahoma City, Okla.

8. "Rehabilitation Following Cerebrovascular Accident" (Lantern Slides), HOWARD RUSK, Professor of Rehabilitation and Physical Medicine, New York University College of Medicine, and MORTON MARKS, Director, Neurological Research Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York, N. Y.

   Discussion opened by Sedgwick Mead, Assistant Professor of Physical Medicine, Washington University School of Medicine, St. Louis, Mo.

9. "Metabolic and Degenerative Disorders in Cushing's Syndrome" (Lantern Slides), DONALD W. SELDIN, Professor of Medicine, Southwestern Medical School of the University of Texas, Dallas, Tex.

   Discussion opened by Augustus Gibson, Rahway, N. J.

Intermission

10. "Steroid Hormones and the Collagen Diseases," WILLIAM M. NICHOLSON, Professor of Medicine, Duke University School of Medicine, Durham, N. C.

    Discussion opened by Elmer L. Sevringhaus, Nutley, N. J.

11. Round-Table Discussion on "Metabolic Problems in the Older Age Group of Patients," TINSLEY R. HARRISON, Birmingham, Ala., Moderator; ELMER L. SEVRINGHAUS, Nutley, N. J.; AUGUSTUS GIBSON, Rahway, N. J.; WILLIAM PARSON, Charlottesville, Va.; EDWARD C. REIFENSTEIN, JR., Oklahoma City, Okla.; ARNOLD E. OSTERBERG, North Chicago, Ill.; WILLIAM M. NICHOLSON, Durham, N. C.; and ALBERT H. HOLLAND, Chicago, Ill.

Questions and answers.

Wednesday, November 12, 2:00 p.m.

12. "The Role of Chemotherapy in the Management of Malignant Lymphomas and Leukemias" (Lantern Slides), R. W. RUNDLES and W. B. BARTON, Durham, N. C.

    Discussion opened by William H. Riser, Jr., Associate Professor of Medicine, Medical College of Alabama, Birmingham, Ala.; Stanton M. Hardy, Pearl River, N. Y.

13. "A Constitutional Symptom Complex Probably Based on Endocrine-Hypothalamic Dysfunction," WILLIAM H. KELLEY, Orlando, Fla.

    Discussion opened by Wendell B. Gordon, Assistant Professor of Medicine, University of Pittsburgh School of Medicine, Pittsburgh, Pa.; George F. Schmitt, Jr., Miami, Fla.

14. "The Clinical Management of Chronic Bone Marrow Failure" (Lantern Slides), VIRGIL LOEB, JR., St. Louis, Mo.

    Discussion opened by E. A. Sharp, Detroit, Mich.

Intermission

15. "The Role of Isonicotinic Acid Derivatives in the Treatment of Tuberculosis," DANIEL E. JENKINS, JR., Assistant Professor of Medicine, Baylor University College of Medicine, Houston, Tex.

    Discussion opened by Elmer L. Sevringhaus, Nutley, N. J.

16. Round-Table Discussion on "Present-Day Chemotherapeutic Agents of Value in Tuberculosis and in Malignancy," R. W. RUNDLES, Durham, N. C., Moderator; STANTON M. HARDY, Pearl River, N. Y.; DANIEL E. JENKINS, JR., Houston, Tex.; ELMER L. SEVRINGHAUS, Nutley, N. J.; WILLIAM H. RISER, JR., Birmingham, Ala., and E. A. SHARP, Detroit, Mich.

Questions and answers.

Election of Officers.

SECTION ON GASTROENTEROLOGY

Officers

Chairman—Milford O. Rouse, Dallas, Tex.
Vice-Chairman—David Cayer, Winston-Salem, N. C.
Secretary—John S. Atwater, Atlanta, Ga.

Hosts from the Dade County Medical Association—Donald F. Marion, Samuel Gertman and Benjamin G. Oren.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 9:00 a.m.

1. "Experiences with Portacaval Shunts" (Lantern Slides), LEO V. MULLIGAN, Assistant Professor of Clinical Surgery, St. Louis University School of Medicine, St. Louis, Mo.

   Discussion opened by Donald T. Chamberlin, Knoxville, Tenn.

2. "Carcinoma of the Pancreas" (Lantern Slides), WILLIAM A. KNIGHT, JR., Assistant Professor of Clinical Medicine, St. Louis University School of Medicine, St. Louis, Mo.

   Discussion opened by Donald F. Marion, Miami, Fla.; Donovan C. Browne, Associate Professor of Clinical Medicine, Tulane University School of Medicine, New Orleans, La.

3. "Acute Pancreatitis: Diagnosis and Treatment" (Lantern Slides), HENRY L. BOCKUS, Professor and Chairman of Department of Medicine, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

Intermission

4. "Early Diagnosis of Carcinoma of the Colon, Particularly in the Mississippi Valley," HENRY G. RUDNER, Associate Professor of Medicine, University of Tennessee College of Medicine, Memphis, Tenn.

   Discussion opened by Edwin J. Jensen, Miami, Fla.; Donald P. White, Jacksonville, Fla.

5. "The Value of Banthine® in the Treatment of Peptic Ulcer: A Controlled Clinical Study" (Lantern Slides), E. CLINTON TEXTER, JR., Instructor in Medicine, Duke University School of Medicine, Durham, N. C.; DAVID CAYER, Associate Professor of Medicine, Bowman Gray School of Medicine, Winston-Salem, N. C.; and JOHN S. ATWATER, Associate in Medicine, Emory University School of Medicine, Atlanta, Ga.

   Discussion opened by Julian M. Ruffin, Professor of Medicine, Duke University School of Medicine, Durham, N. C.; John M. Rumball, Coral Gables, Fla.

6. "Fumagillin as an Amebacidal Agent" (Lantern Slides and Scientific Exhibit), GEORGE E. WELCH, Instructor in Medicine, Tulane University School of Medicine, and GORDON McHARDY, Associate Professor of Clinical Medicine, Louisiana State University School of Medicine, New Orleans, La.

   Discussion opened by Franz H. Stewart, Miami, Fla.; Thomas A. Haedicke, Atlanta, Ga.

Wednesday, November 12, 9:00 a.m.

7. "The Use of Oral Procaine in Heartburn and Other Functional Upper Gastro-Intestinal Symptoms," BENJAMIN G. OREN, Miami, Fla.

   Discussion opened by Walter R. Johnson, Asheville, N. C.; E. Leonard Posey, Jr., Jackson, Miss.

8. "The Mechanism of Cardiospasm," JOHN TILDEN HOWARD, Assistant Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

   Discussion opened by Cecil O. Patterson, Clinical Associate Professor of Medicine (Gastroenterology), Southwestern Medical School of the University of Texas, Dallas, Tex.; James L. Borland, Jacksonville, Fla.

9. Chairman's Address: "Prophylaxis in Peptic Ulcer," MILFORD O. ROUSE, Professor of Clinical Medicine (Gastroenterology), Southwestern Medical School of the University of Texas, Dallas, Tex.

Intermission

10. "Clinical Aspects of Esophageal Hiatus Hernia," JAMES O. BURKE, Assistant Professor of Medicine, and KEMP PLUMMER, Associate in Medicine, Medical College of Virginia, Richmond, Va., and CHARLES ROBINSON, Fort Worth, Tex.

    Discussion opened by Jerome S. Levy, Associate Professor of Medicine, University of Arkansas School of Medicine, Little Rock, Ark.; Jere W. Annis, Lakeland, Fla.

11. "The Roentgenographic Variations of the Normal Stomach and Duodenum," ISADORE MESCHAN, Professor of Radiology, University of Arkansas School of Medicine, HAROLD M. LANDSMAN, Little Rock, Ark., CHALMERS S. POOL, North Little Rock, Ark., and GEORGE G. REGNIER, Assistant Professor of Radiology, University of Arkansas School of Medicine, Little Rock, Ark.

    Discussion opened by Frederick E. Marsh, Chattanooga, Tenn.; Everett L. Pirkey, Associate Professor of Radiol-

ogy, University of Louisville School of Medicine, Louisville, Ky.

12. "Recurrent Henoch-Schonlein Purpura," ARTHUR M. FREEMAN, Assistant Professor of Medicine, Medical College of Alabama, Birmingham, Ala.

Discussion opened by C. Raymond Arp, Atlanta, Ga.; Clarence Bernstein, Orlando, Fla.

Election of Officers.

SECTION ON NEUROLOGY AND PSYCHIATRY

Officers

Chairman—R. Eustace Semmes, Memphis, Tenn.
Vice-Chairman—Warren T. Brown, Houston, Tex.
Secretary—George S. Fultz, Jr., Richmond, Va.

Hosts from the Dade County Medical Association—James L. Anderson, Edward H. Williams, Bernard Goodman and Paul Kells.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 9:00 a.m.

Joint Session of Section with Southern Electroencephalographic Society

1. "Psychotherapeutic Management of Some Forms of Impotency: Analyzed Retraining," JOSE ANGEL BUSTAMANTE, President, Colegio Medico Nacional de Cuba (Cuban Medical Association), Havana, Cuba.

2. "Spells," JOHN VERNON KINROSS-WRIGHT, Durham, N. C.

3. "Convulsive Equivalent Disorders" (Lantern Slides), PETER KELLAWAY, Associate Professor of Neuropsychiatry and of Physiology, Baylor University College of Medicine, Houston, Tex.

Intermission

4. "Electroencephalographic Studies in Alcoholism," JAMES B. FUNKHOUSER, Associate in Psychiatry, Medical College of Virginia, Richmond, Va.

5. "Management of Psychiatric Patients with Abnormal Electroencephalograms" (Lantern Slides), IRVING PINE, Assistant Professor of Psychiatry, and MILTON M. PARKER, Assistant Professor of Psychiatry, Ohio State University College of Medicine, Columbus, O.

6. "The Use of Dexedrine in Severe Behavior Problems of Children," LESLIE B. HOHMAN, Professor of Neuropsychiatry, Duke University School of Medicine, Durham, N. C.

Wednesday, November 12, 9:00 a.m.

7. Chairman's Address: "Suggestions in Coordinating the Study of the Psyche and the Soma," R. EUSTACE SEMMES, Memphis, Tenn.

8. "The Variety of Spinal Lesions Simulating the Disk Syndrome" (Lantern Slides), FRANK J. OTENASEK, Baltimore, Md.

Discussion opened by Christian Keedy, Miami, Fla.

9. "Emotional Visualization Technic" (Lantern Slides), ROBERT V. SELIGER, Baltimore, Md.

Discussion opened by Harry R. Lipton, Atlanta, Ga.

Intermission

10. "Prefrontal Lobotomy in Schizophrenia: Evaluation of Surgical Results" (Lantern Slides), JAMES G. GALBRAITH, Associate Professor of Clinical Surgery (Neurosurgery), Medical College of Alabama, and STANLEY E. GRAHAM, Birmingham, Ala.

Discussion opened by Raymond S. Crispell, Atlanta, Ga.

11. "Carbon Dioxide-Oxygen Therapy: 250 Cases," GEORGE A. SILVER, Associate Professor of Psychiatry, Duke University School of Medicine, Durham, N. C.

Discussion opened by John D. Bradley, Asheville, N. C.; Peritz Scheinberg, Miami, Fla.

12. "Findings in Patients Suffering from Anxiety States Treated with Prenderol®," LOWELL S. SELLING, Orlando, Fla.

Discussion opened by James L. Anderson, Miami, Fla.

Thursday, November 13, 9:00 a.m.

13. "Recent Advances in the Diagnosis and Treatment of Cerebral Vascular Accidents" (Lantern Slides), EXUM WALKER, WILLIAM W. MOORE, JAMES R. SIMPSON and F. VATNAR KRISTOFF, Atlanta, Ga.

Discussion opened by W. Tracy Haverfield, Miami, Fla.

14. "The Differentiation and Management of Abnormal Mental States in the Aged," WARREN T. BROWN, Associate Dean and Professor of Neuropsychiatry, and JACKSON A. SMITH, Assistant Professor of Psychiatry, Baylor University College of Medicine, Houston, Tex.

Discussion opened by R. Milton Finney, Associate Professor of Clinical Psychiatry, Baylor University College of Medicine, Houston, Tex.

15. "Studies on One Thousand Patients with Vascular Headaches" (Scientific Exhibit), ARNOLD P. FRIEDMAN and THEODORE J. C. VON STORCH, New York, N. Y.

Discussion opened by Herman Selinsky, Miami, Fla.

Intermission

16. "The Hypnotherapy of a Patient with Severe Pruritus Vulvae," HAROLD ROSEN, Baltimore, Md.

Discussion opened by William B. Reese, Professor of Psychiatry, University of Arkansas School of Medicine, Little Rock, Ark.

17. "Torticollis: Its Psychodynamics and Therapy," RICHARD W. GARNETT, JR. and KEMAL ELBIRLIK, Charlottesville, Va.

Discussion opened by James B. Funkhouser, Associate in Psychiatry, Medical College of Virginia, Richmond, Va.

18. "Use of Narcotics in Chronic Illnesses," REX BLANKINSHIP and THOMAS F. COATES, JR., Richmond, Va.

Discussion opened by Sullivan G. Bedell, Jacksonville, Fla.

Election of Officers.

SOUTHERN ELECTROENCEPHALOGRAPHIC SOCIETY

Meeting conjointly with the Section on Neurology and Psychiatry of the Southern Medical Association

Officers

President—E. Roseman, Louisville, Ky.
Vice-President—I. S. Zfass, Richmond, Va.
Secretary-Treasurer—Irving Pine, Columbus, O.
Chairman Program Committee—Samuel C. Little, Birmingham, Ala.

Sunday, November 9, 8:00 p.m.

Sorrento Hotel, Miami Beach

Council meeting.

Monday, November 10

Sorrento Hotel, Miami Beach

8:30 a.m.—Registration.

9:00 a.m.—Business meeting.

1. Address by the President, E. ROSEMAN, Professor and Head of the Section on Neurology, University of Louisville School of Medicine, Louisville, Ky.

2. "The Electroencephalogram and Emotion" (Lantern Slides), HUDSON JOST, Athens, Ga.

3. "Electroencephalographic Changes with Hyperventilation Followed by Apnea" (Lantern Slides), DONALD S. BICKERS, Atlanta, Ga.

4. "Dormison as a Hypnotic in Clinical Electroencephalography" (Lantern Slides), PAUL M. LEVIN, Clinical Assistant Professor of Neuropsychiatry, Southwestern Medical School of the University of Texas, Dallas, Tex.

5. "Changes in the Electroencephalograms of Patients with Convulsive Disorders Following Administration of Hibicon," C. D. HAWKES, Assistant Professor of Neurology and Instructor in Neurosurgery, University of Tennessee College of Medicine, Memphis, Tenn.

6. "The Electroencephalogram in Paralysis Agitans," DON L. WINFIELD and P. J. SPARER, Memphis, Tenn.

SECTION ON PEDIATRICS

Officers

Chairman—James G. Hughes, Memphis, Tenn.
Vice-Chairman—Preston A. McLendon, Washington, D. C.
Secretary—William G. Crook, Jackson, Tenn.

Hosts from the Dade County Medical Association—William W. McKibben, Warren W. Quillian, Lynn W. Whelchel and Leo Grossman.

Tuesday, November 11, 1:45 p.m.

Joint Session, Section on Pediatrics, Section on Radiology and Section on Urology

1. PYELOGRAM CLINIC, Panel Discussion on "Urological Problems in Children," T. LEON HOWARD, Denver, Colo., Moderator.

   Representing Urology: MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

   Representing Pediatrics: JAMES G. HUGHES, Chairman, Section on Pediatrics, Memphis, Tenn.

   Representing Radiology: WENDELL G. SCOTT, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Mo.

2. "Genital Anomalies in Children," MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

Intermission

3. "The Differential Diagnosis of Human Histoplasmosis" (Scientific Exhibit), AMOS CHRISTIE, Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn.

4. "The Role of Coxsackie Viruses in Human Disease" (Lantern Slides), EDWARD C. CURNEN, Professor of Pediatrics, University of North Carolina School of Medicine, Chapel Hill, N. C.

Wednesday, November 12, 2:00 p.m.

5. "Humidification in Pediatrics," JOSEPH B. MILLER, Mobile, Ala.

6. "Pulmonary Insufficiencies of the Newborn Period" (Lantern Slides and Scientific Exhibit), HELEN MORTON, Instructor in Pediatrics, LEE E. SUTTON, JR., Professor of Pediatrics, and G. R. HENNIGAR, Associate Professor of Pathology, Medical College of Virginia, Richmond, Va.

7. "ACTH and Cortisone in the Treatment of Rheumatic Fever," JOSEPH A. JOHNSTON, Detroit, Mich.

Intermission

8. "The Practical Management of the Allergic Child," WALKER L. RUCKS, Memphis, Tenn.

9. "Clinical Evaluation of the Disc Method for Determination of Bacterial Sensitivity" (Lantern Slides), POPE B. HOLLIDAY, JR., Chattanooga, Tenn.

Thursday, November 13, 2:00 p.m.

10. "Complications of Severe Infantile Diarrhea" (Lantern Slides), ARTURO J. ABALLI, Assistant Professor of Pediatrics, University of Havana School of Medicine, Havana, Cuba.

11. "Adrenal Insufficiency with Report of Four Cases in Newborn Males" (Lantern Slides), BARNETT P. BRIGGS, Associate Professor of Pediatrics, and EUGENE H. CRAWLEY, Instructor in Pediatrics, University of Arkansas School of Medicine, Little Rock, Ark.

Intermission

Case presentations by members of Florida State Pediatric Society, LYNN W. WHELCHEL, Miami, presiding. Presentations limited to ten minutes.

12. "Sexual Precocity of Constitutional Type" (Lantern Slides), RICHARD G. SKINNER, JR., Jacksonville, Fla.

13. "Bronchoesophageal Fistula Without Atresia" (Lantern Slides), EGBERT V. ANDERSON, Pensacola, Fla.

14. "Cretinism in Early Infancy," ROBERT F. MIKELL, Miami, Fla.

15. "Aplastic Anemia Following Chloramphenicol Administration," EDGAR W. STEPHENS, JR. and LAWRENCE R. LEVITON, West Palm Beach, Fla.

16. "Hiatal Diaphragmatic Hernia," CHARLES ROSENFELD, Miami, Fla.

17. "Acute Rheumatic Fever," CHARLOTTE MAGUIRE, Orlando, Fla.

18. "Funnel Chest" (Lantern Slides), JOHN G. CHESNEY and DeWITT C. DAUGHTRY, Miami, Fla.

Election of Officers.

SECTION ON PATHOLOGY

Officers

Chairman—Paul Kimmelstiel, Charlotte, N. C.
Vice-Chairman—H. R. Pratt-Thomas, Charleston, S. C.
Secretary—A. J. Gill, Dallas, Tex.

Hosts from the Dade County Medical Association—Philipp R. Rezek, Robert J. Poppiti and Maxwell M. Savet.

Presentations limited to fifteen minutes with five minutes for discussion—twenty-minute periods.

Tuesday, November 11, 9:00 a.m.

1. "Primary Meningeal Melanomas" (Lantern Slides), SIMON RUSSI, Assistant Professor of Pathology and Clinical Pathology, Medical College of Virginia, Richmond, Va.; CHARLES ROBINSON, Fort Worth, Tex.; and BENEDICT NAGLER, Assistant Professor of Psychiatry and Neurology, Medical College of Virginia, Richmond, Va.

2. "The Shwartzman Phenomenon When Modified by Nitrogen Mustard, ACTH and Thorium Dioxide: A Histopathologic Study" (Lantern Slides), GEORGE J. RACE and DORIS WINGATE REED, Durham, N. C.

3. "Biology of Tumor Transplantation in Animal and in Man," ALBERT E. CASEY, Associate Professor of Pathology, Medical College of Alabama, Birmingham, Ala.

4. "Intravascular Red Cell Destruction: A Histologic Study of Schizocytes in Thrombotic Purpura and Other Conditions," ARNOLD F. A. STRAUSS and WILLYS M. MONROE, Norfolk, Va.

Intermission

5. "Guillain-Barre-Like Manifestations Produced by St. Louis Encephalitis Virus: Pathologic Considerations" (Lantern Slides), MURRAY SANDERS and ALFRED BLUMBERG, Coral Gables, Fla.

6. "Experimental Production of Pulmonary Hyaline Membranes: Comparison with Hyaline Membranes of the Neonatal Period," JAMES B. CAULFIELD, Chapel Hill, N. C.

7. "Acute Tubular Nephrosis, A Complication of Shock" (Lantern Slides), VIRGIL H. MOON, Coral Gables, Fla.

8. Chairman's Address: "Morphology and Function in Classification of Renal Diseases," PAUL KIMMELSTIEL, Charlotte, N. C.

Election of Officers.

COLLEGE OF AMERICAN PATHOLOGISTS

Southeastern and South Central Sections

Meeting conjointly with the Section on Pathology of the Southern Medical Association

Officers

Kenneth M. Brinkhous, Chapel Hill, N. C., Chairman, Southeastern Section.
John L. Goforth, Dallas, Tex., Chairman, South Central Section.
Paul Kimmelstiel, Charlotte, N. C., Program Chairman.
Robert J. Poppiti, Miami Beach, Fla., Chairman, Committee on Local Arrangements.

Wednesday, November 12, 9:00 a.m.

ROUND-TABLE DISCUSSION ON BONE PATHOLOGY

LENT C. JOHNSON, Armed Forces Institute of Pathology, Washington, D. C., Moderator.

ROBERT A. KNIGHT, Assistant Professor of Orthopedic Surgery, University of Tennessee College of Medicine, Memphis, Tenn.

WALTER G. J. PUTSCHAR, Pathologist, Charleston, W. Va.

GEORGE W. CHANGUS, Department of Pathology, University of Tennessee College of Medicine, Memphis, Tenn.

The panel members will discuss a series of cases submitted by members of the regions and by the Armed Forces Institute of Pathology. The selection of cases covers a variety of topics in which lesions other than true tumors are given preference.

Wednesday, November 12, 7:30 p.m.

Dinner Meeting, College of American Pathologists and Section on Pathology of Southern Medical Association

Address: "General Theory of Bone Tumors," LENT C. JOHNSON, Armed Forces Institute of Pathology, Washington, D. C.

Thursday, November 13, 9:00 a.m.

ROUND-TABLE DISCUSSION ON RENAL PATHOLOGY

Introduction by HOMER W. SMITH, Professor of Physiology, New York University College of Medicine, New York, N. Y., "Structure and Function in the Kidney: Some Historical Highlights."

J. F. A. McMANUS, Associate Professor of Pathology, University of Virginia Department of Medicine, Charlottesville, Va.

LOGAN O. JONES, Internist, Charlotte, N. C.

HOMER W. SMITH, Professor of Physiology, New York University College of Medicine, New York, N. Y.

The session consists of case analyses. The pathologist is to present his conclusions from study of kidney sections without knowledge of clinical history, the internist without knowledge of the pathologic findings. The physiologist will correlate function and morphology.

Thursday, November 13, 2:00 p.m.

Continuation of ROUND-TABLE DISCUSSION ON RENAL PATHOLOGY

SECTION ON RADIOLOGY

Officers

Chairman—Robert C. Pendergrass, Americus, Ga.
Vice-Chairman—Robert D. Moreton, Fort Worth, Tex.
Secretary—Stephen W. Brown, Augusta, Ga.

Hosts from the Dade County Medical Association—Gerard Raap, Frazier J. Payton, David Kirsh and Burton B. Berman.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. Chairman's Address: "The Management of Skin Tumors" (Lantern Slides), ROBERT C. PENDERGRASS, Americus, Ga.

   Discussion opened by J. Maxey Dell, Gainesville, Fla.

2. "Bursitis and Peritendinitis: The Diagnosis and Treatment" (Lantern Slides), J. CASH KING and CHARLES K. MAHAFFEY, Memphis, Tenn.

   Discussion opened by Harold O. Brown, Tampa, Fla.

3. "Congenital Cysts and Cystic Tumors of the Mediastinum" (Lantern Slides), EDGAR H. LITTLE, Assistant Professor of Clinical Radiology, Tulane University School of Medicine, New Orleans, La.

   Discussion opened by Frazier J. Payton, Miami, Fla.

Intermission

4. "Double Contrast Studies of the Colon: Polyps in Children" (Lantern Slides), CHARLES W. YATES, Houston, Tex.

   Discussion opened by A. Judson Graves, Jacksonville, Fla.

5. "Changes in the Gastro-Intestinal Tract Associated with Aging" (Lantern Slides), EVERETT L. PIRKEY, Professor of Radiology, University of Louisville School of Medicine, Louisville, Ky.

   Discussion opened by Thomas H. Lipscomb, Jacksonville, Fla.

6. "Curling of the Esophagus" (Lantern Slides), MARSHALL ESKRIDGE and JOHN DAY PEAKE, Mobile, Ala.

   Discussion opened by Floyd K. Hurt, Jacksonville, Fla.

Tuesday, November 11, 9:00 a.m.

7. "Premature Closure of Cranial Sutures" (Lantern Slides), J. DUDLEY KING, Instructor in Radiology, JOSEPH H. PATTERSON, Associate Professor of Pediatrics, and WILLIAM W. BRYAN, Associate Professor of Clinical Roentgenology, Emory University School of Medicine, Atlanta, Ga.

   Discussion opened by Frederick K. Herpel, West Palm Beach, Fla.

8. "Evaluation of Pelvic Capacity in the Obstetric Patient" (Lantern Slides), ROBERT P. BALL, Baton Rouge, La.

   Discussion opened by Gerard Raap, Miami, Fla.

Intermission

9. "Observations on the Planning of Radiologic Installations," WENDELL G. SCOTT, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Mo.

   Discussion opened by Nelson T. Pearson, Miami, Fla.

10. "Recent Advances in Isotope Therapy," CHARLES F. BEHRENS, Rear Admiral, Medical Corps, U. S. Navy, New York, N. Y.

Election of Officers.

Tuesday, November 11, 1:45 p.m.

Joint Session, Section on Radiology, Section on Urology and Section on Pediatrics

11. PYELOGRAM CLINIC, Panel Discussion on "Urological Problems in Children," T. LEON HOWARD, Denver, Colo., Moderator.

    Representing Urology: MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

    Representing Pediatrics: JAMES G. HUGHES, Chairman, Section on Pediatrics, Memphis, Tenn.

    Representing Radiology: WENDELL G. SCOTT, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Mo.

12. "Genital Anomalies in Children," MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

Intermission

13. "The Differential Diagnosis of Human Histoplasmosis," AMOS CHRISTIE, Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn.

14. "The Role of Coxsackie Viruses in Human Disease" (Lantern Slides), EDWARD C. CURNEN, Professor of Pediatrics, University of North Carolina School of Medicine, Chapel Hill, N. C.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Officers

Chairman—D. Truett Gandy, Houston, Tex.
Vice-Chairman—William L. Kirby, Winston-Salem, N. C.
Secretary—Ray O. Noojin, Birmingham, Ala.

Hosts from the Dade County Medical Association—Wiley M. Sams, A. Buist Litterer, Marcus B. Cirlin and Hollis F. Garrard.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 2:00 p.m.

Jackson Memorial Hospital

Dermatologic clinic, case presentations by Miami dermatologists followed by discussion of cases.

Wednesday, November 12, 2:00 p.m.

1. Chairman's Address: "The Concept and Clinical Aspects of Factitial Dermatitis" (Lantern Slides), D. TRUETT GANDY, Associate Clinical Professor of Dermatology and Syphilology, Baylor University College of Medicine, Houston, Tex.

2. "The Problem of Atopic Dermatitis" (Lantern Slides), PAUL A. O'LEARY, Professor of Dermatology and Syphilology, University of Minnesota Graduate School of Medicine, Mayo Foundation, Rochester, Minn.

3. "Granuloma Gangraenescens (Malignant Granuloma): Report of Unusual Case" (Lantern Slides), VICENTE PARDO-CASTELLO, Assistant Professor of Dermatology and Syphilology, University of Havana School of Medicine, and Chief of Department of Dermatology and Syphilology, General Calixto Garcia Hospital, Havana, Cuba.

Intermission

4. "The Present-Day Status of Infectious Eczematoid Dermatitis," C. BARRETT KENNEDY, Associate Clinical Professor of Dermatology and Syphilology, Louisiana State University School of Medicine, V. MEDD HENINGTON and WILLIAM H. GARVIN, New Orleans, La.

   Discussion opened by Ellis P. Cope, Associate Professor of Medicine (Dermatology and Syphilology), University of Arkansas School of Medicine, Little Rock, Ark.; Hugh E. Hailey, Atlanta, Ga.

5. "Staphylococcic Ambotoxoid in the Treatment of Pustular Acne," WILLIAM L. DOBES, Atlanta, Ga.

   Discussion opened by David L. Hearin, Atlanta, Ga.; Kathleen A. Riley, Charleston, S. C.

6. "Paraphenylenediamine in Dermatology," LOUIS SCHWARTZ, Washington, D. C.

   Discussion opened by Paul C. Campbell, Fayetteville, N. C.; Edward P. Cawley, Professor and Chairman of Department of Dermatology and Syphilology, University of Virginia Department of Medicine, Charlottesville, Va.

Thursday, November 13, 9:00 a.m.

7. "A Clinical Evaluation of Bacitracin-Polymyxin Ointment" (Lantern Slides), WILLIAM L. KIRBY, GEORGE W. JAMES and ROBERT L. TUTTLE, Section on Dermatology of the Department of Medicine, Bowman Gray School of Medicine, Winston-Salem, N. C.

   Discussion opened by Wiley M. Sams, Miami, Fla.; James K. Howles, Professor of Dermatology, Louisiana State University School of Medicine, New Orleans, La.

8. "Terramycin in the Treatment of Dermatoses," HARRY M. ROBINSON, JR., Associate Professor of Dermatology, ISRAEL ZELIGMAN, Assistant Professor of Dermatology, ALBERT SHAPIRO, Assistant Professor of Dermatology, and MORRIS M. COHEN, Associate in Dermatology, University of Maryland School of Medicine, Baltimore, Md.

   Discussion opened by Beatrice H. Kuhn, Charleston, W. Va.; Thomas W. Murrell, Jr., Richmond, Va.

9. "Thorium X in Dermatology" (Lantern Slides), JOHN VAN DE ERVE, JR., Clinical Professor and Head of the Department of Dermatology and Syphilology, Medical College of the State of South Carolina, Charleston, S. C.

   Discussion opened by Herman Pinkus, Assistant Professor of Dermopathology, Wayne University College of Medicine (Detroit), Monroe, Mich.; J. W. Calvert, Bluefield, W. Va.; Gerald M. Frumess, Assistant Professor of Dermatology and Syphilology, University of Colorado School of Medicine, Denver, Colo.

Intermission

10. "Cutaneous Papillomatosis, Pseudo-Acanthosis Nigracans and Benign Acanthosis Nigricans" (Lantern Slides), MORRIS WAISMAN, Tampa, Fla.

    Discussion opened by J. Lamar Callaway, Professor of Dermatology and Syphilology, Duke University School of Medicine, Durham, N. C.; Francis A. Ellis, Assistant Professor of Dermatology, University of Maryland School of Medicine, Baltimore, Md.

11. "X-Ray Therapy in the Treatment of Hemangiomas" (Lantern Slides), WESLEY W. WILSON, Tampa, Fla.

    Discussion opened by Winfred A. Showman, Tulsa, Okla.; John H. Lamb, Associate Professor of Dermatology and Syphilology, University of Oklahoma School of Medicine, Oklahoma City, Okla.

12. "Benign Pigmented Nevi: A Survey of Treatment by Dermatologists," CLARENCE SHAW, Chattanooga, Tenn.

    Discussion opened by Richard W. Fowlkes, Professor of Dermatology and Syphilology, Medical College of Virginia, Richmond, Va.; Herbert S. Alden, Assistant Professor of Clinical Medicine (Dermatology), Emory University School of Medicine, Atlanta, Ga.

Election of Officers.

SECTION ON ALLERGY

Officers

Chairman—Vincent J. Derbes, New Orleans, La.
Vice-Chairman—Ralph Bowen, Houston, Tex.
Secretary—George W. Owen, Jackson, Miss.

Hosts from the Dade County Medical Association—Nelson Zivitz, James H. Putman and Lewis Palay.

Presentations limited to twenty minutes.

Wednesday, November 12, 9:00 a.m.

1. Chairman's Address: "After-Cough Fainting as a Complication of Bronchial Asthma" (Lantern Slides), VINCENT J. DERBES, Associate Professor of Medicine, and Director of the Division of Allergy, Tulane University School of Medicine, New Orleans, La.

SYMPOSIUM ON ASTHMA

Marion T. Davidson, Birmingham, Ala., Moderator

2. "What the General Practitioner Should Know About Asthma," WARREN F. KAHLE, Houston, Tex.

3. "Chronic Intractable Asthma: Practical Plan of Management" (Lantern Slides), BENNETTE B. POOL, Assistant Professor of Clinical Medicine, Bowman Gray School of Medicine, Winston-Salem, N. C.

4. "Present Status of ACTH and Cortisone Therapy in the Treatment of Asthma: Favorable Response and Indications for Therapy," O. C. HANSEN-PRUSS, Associate Professor of Medicine (Clinical Microscopy), Duke University School of Medicine, Durham, N. C.

5. "Present Status of ACTH and Cortisone Therapy in the Treatment of Asthma: Unfavorable Response and Contraindications for Therapy" (Lantern Slides), CHARLES P. WOFFORD, Johnson City, Tenn.

Questions and answers.

Intermission

SYMPOSIUM ON ALLERGIC SKIN DISEASES

J. D. Youman, Jr., Shreveport, La., Moderator

6. "Atopic Dermatitis" (Lantern Slides), CLARENCE BERNSTEIN, Orlando, Fla.

7. "Contact Dermatitis" (Lantern Slides), TOLBERT C. CROWELL, Chattanooga, Tenn.

8. "What the General Practitioner Should Know About the Management of Allergic Skin Diseases," WILEY M. SAMS, Miami, Fla.

Questions and answers.

Wednesday, November 12, 12:30 p.m.

Luncheon Meeting

9. "Physiological Basis of Allergic Diseases," ARTHUR C. GUYTON, Professor and Chairman of the Department of Physiology and Biophysics, University of Mississippi School of Medicine, Oxford, Miss.

Thursday, November 13, 9:00 a.m.

SYMPOSIUM ON ALLERGY OF THE NERVOUS SYSTEM

Hal M. Davison, Atlanta, Ga., Moderator

10. "Electroencephalography in Allergic Epilepsy," SUSAN C. DEES, Durham, N. C.

11. "Neurological Manifestations of Allergy," FANNIE LOU LENEY, Oklahoma City, Okla.

12. "Mental and Emotional Manifestations of Allergy," KATHARINE BAYLIS MacINNIS, Columbia, S. C.

Questions and answers.

Intermission

SYMPOSIUM ON PERENNIAL ALLERGIC RHINITIS

Carl D. Marsh, Memphis, Tenn., Moderator

13. "Diagnosis of Perennial Allergic Rhinitis" (Lantern Slides), HERBERT J. RINKEL, Kansas City, Mo.

14. "Complications of Perennial Allergic Rhinitis," V. E. HOLCOMBE, Charleston, W. Va.

15. "Treatment of Perennial Allergic Rhinitis," JAMES H. PUTMAN, Miami, Fla.

Questions and answers.

Election of Officers.

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

Officers

Chairman—A. Ray Dawson, Richmond, Va.
Vice-Chairman—Sedgwick Mead, St. Louis, Mo.
Secretary—Edward M. Krusen, Jr., Dallas, Tex.

Hosts from the Dade County Medical Association—Kenneth Phillips and Meyer J. Glick.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 9:00 a.m.

1. Chairman's Address: "Emotional Aspects of Medical Rehabilitation," A RAY DAWSON, Chief, Physical Medicine and Rehabilitation Service, McGuire Veterans Administration Hospital, and Associate Professor of Clinical Physical Medicine, Medical College of Virginia, Richmond, Va.

2. "Recognition and Care of Early Scoliosis" (Lantern Slides), ROBERT L. BENNETT, Director of Physical Medicine, Georgia Warm Springs Foundation, Warm Springs, Ga.

   Discussion opened by Oscar O. Selke, Jr., Houston, Tex.

3. "Physical Medicine and Rehabilitation as Applied to Geriatrics," A. B. C. KNUDSON, Chief, Physical Medicine and Rehabilitation Service, Veterans Administration, Washington, D. C.

   Discussion opened by Ben L. Boynton, Houston, Tex.

Intermission

4. "Rehabilitation of the Amputee Patient" (Lantern Slides), DONALD A. COVALT, Associate Professor of Rehabilitation, New York University College of Medicine, New York, N. Y.

5. "Breathing Exercises in the Treatment of Bronchial Asthma," MEYER J. GLICK, Miami Beach, Fla.

   Discussion opened by George D. Wilson, Asheville, N. C.

Election of Officers.

SECTION ON INDUSTRIAL MEDICINE AND SURGERY

Officers

Chairman—R. Lomax Wells, Washington, D. C.
Vice-Chairman—C. U. Dernehl, Texas City, Tex.
Secretary—Richard M. Adams, Shreveport, La.

Hosts from the Dade County Medical Association—Gerald J. Walsh, James E. Fischer and Etheridge J. Hall.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 12:30 p.m.

The Medical Departments of Eastern Air Lines and Pan American Air Lines will entertain the industrial physicians and surgeons at lunch. Following lunch there will be a tour of the Medical Departments showing what is being done in aviation medicine.

Wednesday, November 12, 9:00 a.m.

1. Chairman's Address: "Human Relations in Industry," R. LOMAX WELLS, Medical Director, The Chesapeake and Potomac Telephone Companies, Washington, D. C.

2. "Industrial Medicine and Private Practice," PAUL A. DAVIS, Past President, American Academy of General Practice, Akron, O.

3. "Menorrhalgia: Menstrual Disability," WILLIAM M. BICKERS, Richmond, Va.

Intermission

4. "Knee Trauma" (Lantern Slides), ELIAS MARGO, Oklahoma City, Okla.

   Discussion opened by L. S. Thompson, Dallas, Tex.; Keiffer Davis, Bartlesville, Okla.

5. "Executive Health Examinations" (Lantern Slides), JAMES P. BAKER, Medical Director, Greenbrier Clinic, White Sulphur Springs, W. Va.

Thursday, November 13, 9:00 a.m.

6. "Cardiovascular Disease in Industry," D. V. HOLMAN, Standard Oil Company of New Jersey, New York, N. Y.

7. "An Experiment in Foot Health," MAC ROY GASQUE, Medical Director, Ecusta Paper Corporation, and GEORGE F. HOLT, Pisgah Forest, N. C.

8. "Field Periodic Examinations" (Lantern Slides), RICHARD M. ADAMS, Medical Director, Interstate Oil Pipe Line Company, Shreveport, La.

Intermission

9. "The Emotionally Handicapped in Industry," JOHN R. WINSTON, Medical Director, The Atchison, Topeka and Santa Fe Railway System, Temple, Tex.

10. "The Problem Drinker in Industry," HOWARD R. MASTERS, Associate Professor of Psychiatry and Neurology, Medical College of Virginia, Richmond, Va.

    Discussion opened by Joseph L. Knapp, Dallas, Tex.; J. J. Brandabur, Chief Medical Examiner, Chesapeake and Ohio Railway Company, Huntington, W. Va.

Election of Officers.

SECTION ON SURGERY

Officers

Chairman—Franklin E. Walton, St. Louis, Mo.
Vice-Chairman—John V. Goode, Dallas, Tex.
Secretary—Donald W. Smith, Miami, Fla.

Hosts from the Dade County Medical Association—John W. Snyder, Joseph S. Stewart, George D. Lilly and Morris H. Blau.

Presentations limited to fifteen minutes with five minutes for discussion—twenty-minute periods.

Tuesday, November 11, 9:00 a.m.

1. Chairman's Address: "An Adequate Operation for Carcinoma of the Stomach" (Lantern Slides), FRANKLIN E. WALTON, Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Mo.

2. "Diverticulosis of the Colon with Bleeding" (Lantern Slides), H. GLENN BELL, Professor of Surgery, University of California Medical School, San Francisco, Calif.

   Discussion opened by John V. Goode, Dallas, Tex.

3. "Pheochromocytoma" (Lantern Slides), WALTER H. GERWIG, JR., Assistant Clinical Professor of Surgery, George Washington University School of Medicine, and SAM F. SEELEY, Brigadier General, Medical Corps, U. S. Army, Washington, D. C.

   Discussion opened by J. Roy Guyther, Mechanicsville, Md.; Walter C. Jones, Miami, Fla.

Intermission

4. "Organic Hyperinsulinism: Surgical Management" (Lantern Slides), R. R. WHITE, Associate Professor of Clinical Surgery, University of Texas Postgraduate School of Medicine, Temple Division, Temple, Tex.

   Discussion opened by Franklin E. Walton, Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Mo.

5. "A New Method for the Management of Duodenal Fistulas," ROBERT M. LEE, Miami, Fla.

   Discussion opened by John B. MacGregor, Commander, Medical Corps, U. S. Navy, U. S. Naval Medical Center, Bethesda, Md.; John Elliott, Miami, Fla.

Wednesday, November 12, 9:00 a.m.

6. "The Surgical Management of Stenotic Valvular Heart Disease" (Lantern Slides), PAUL T. DECAMP, Assistant Professor of Surgery, and REICHARD KAHLE, Associate Professor of Surgery, Tulane University School of Medicine, New Orleans, La.

   Discussion opened by Herbert Eichert, Miami, Fla.

SEMINAR ON PERIPHERAL VASCULAR SURGERY

7. "The Management of Arterial Insufficiency of the Lower Extremities" (Lantern Slides), GEORGE D. LILLY, Miami, Fla.

8. "Femoral Embolectomy," FURMAN WALLACE, W. F. UTTERMAN and WILLIAM HENDRIX, Spartanburg, S. C.

9. "The Post-Phlebetic Leg: Discussion of Popliteal Vein Ligation and Erect Phlebography" (Lantern Slides), ROY L. ROBERTSON, Instructor in Surgery, Emory University School of Medicine, Atlanta, Ga.

10. "The Diagnostic Evaluation and a Simple Technic for the Removal of Varicose Veins" (Lantern Slides), CHARLES R. DOYLE, Assistant Professor of Clinical Surgery, St. Louis University School of Medicine, St. Louis, Mo.

    Panel Discussion on Peripheral Vascular Surgery, GEORGE D. LILLY, Miami, Fla., Moderator. Members of Panel, PAUL T. DECAMP, New Orleans, La.; FURMAN WALLACE, Spartanburg, S. C.; ROY L. ROBERTSON, Atlanta, Ga.; and CHARLES R. DOYLE, St. Louis, Mo.

Thursday, November 13, 9:00 a.m.

11. "Bilateral Mastectomy for Breast Cancer" (Lantern Slides and Scientific Exhibit), GEORGE B. SANDERS, Assistant Clinical Professor of Surgery, University of Louisville School of Medicine, Louisville, Ky.

    Discussion opened by Charles Lockhart, Springfield, Mo.; Charles L. Eckert, Assistant Professor of Surgery, Washington University School of Medicine, St. Louis, Mo.

12. "Ten Year Surgical Experience of Cancer of the Lungs" (Lantern Slides), ANTONIO RODRIGUEZ DIAZ and HILARIO ANIDO, Department of Thoracic Surgery, General Calixto Garcia Hospital, University of Havana School of Medicine, Havana, Cuba.

    Discussion opened by Duane Carr, Associate Professor of Surgery, University of Tennessee College of Medicine, Memphis, Tenn.; John S. Harter, Assistant Clinical Professor of Surgery, University of Louisville School of Medicine, Louisville, Ky.

13. "The Surgical Management of Pulmonary Emphysematous Blebs and Bullae" (Lantern Slides), FRANCIS N. COOKE and BURNETT SCHAFF, Miami, Fla.

    Discussion opened by Isaac B. Cippes, Miami, Fla.; Maurice Kovnat, Miami Beach, Fla.

Intermission

14. "Chest Surgery in Infants and Children," JOHN G. CHESNEY and DEWITT C. DAUGHTRY, Miami, Fla.

    Discussion opened by Ralph S. Sappenfield, Miami, Fla.

15. "Long Acting Bilateral Intercostal Nerve Block for Upper Abdominal Surgery" (Motion Picture), ROBERT W. BARTLETT, Assistant Professor of Clinical Surgery, and DOUGLAS W. EASTWOOD, Director, Division of Anesthesiology, Washington University School of Medicine, St. Louis, Mo.

    Discussion opened by W. Ralph Deaton, Winston-Salem, N. C.

16. "An Evaluation of Early Operation in Inflammatory Disease of the Gallbladder and Biliary Tract," PATRICK C. SHEA, Instructor in Surgery, Emory University School of Medicine, Atlanta, Ga.

    Discussion opened by David R. Murphey, Jr., Tampa, Fla.

Election of Officers.

SECTION ON ORTHOPEDIC AND TRAUMATIC SURGERY

Officers

Chairman—Rufus H. Alldredge, New Orleans, La.
Vice-Chairman—W. Kelly West, Oklahoma City, Okla.
Secretary—R. Beverly Raney, Chapel Hill, N. C.

Hosts from the Dade County Medical Association—Ferdinand A. Vogt, Francis W. Glenn, Milton P. Travers and Robert P. Keiser.

Presentations limited to fifteen minutes, with the exception of the Chairman's Address and the out-of-territory essayist, with discussion limited to five minutes—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. "Functional Fixation of Fractures of the Lower Extremities" (Lantern Slides), WILLIAM K. MASSIE, Lexington, Ky.

   Discussion opened by Milton C. Cobey, Assistant Professor of Orthopedic Surgery, Georgetown University School of Medicine, Washington, D. C.

2. "Indications for Bone Grafting in the Primary Treatment of Fractures" (Lantern Slides), K. ARMAND FISCHER, Clinical Professor of Orthopedic Surgery and Chief of the Orthopedic Section, University of Louisville School of Medicine, Louisville, Ky.

   Discussion opened by John F. Lovejoy, Jacksonville, Fla.

3. "The Results of Primary Block Resection in Tumoral Bone Lesions," ALBERTO INCLAN, Professor of Orthopedic Surgery, and PEDRO M. LEON, Associate Professor of Histology and Embryology, University of Havana School of Medicine, Havana, Cuba.

Intermission

4. "The Epidemiology of Car Window Accidents" (Lantern Slides), MILTON S. THOMPSON, Colonel, Medical Corps, U. S. Army; Chief, Orthopedic Service, Brooke General Hospital, Fort Sam Houston, Tex.; Professor of Orthopedic Surgery, Baylor University Postgraduate School of Medicine, San Antonio Branch; and GEORGE H. CHAMBERS, Major, Medical Corps, U. S. Air Force, Iowa City, Ia.

   Discussion opened by John Glasson, Durham, N. C.

5. "Fractures of the Upper End of the Femur" (Motion Picture), EUGENE L. JEWETT, FRED H. ALBEE, JR., and F. DEWITT STANFORD, Orlando, Fla.

   Discussion opened by H. Earle Conwell, Associate Professor of Orthopedic Surgery, Medical College of Alabama, Birmingham, Ala.

6. "Application Complications of Hip Prostheses" (Lantern Slides), EUGENE G. LIPOW, Washington, D. C.

   Discussion opened by Robert C. Lonergan, St. Petersburg, Fla.

Tuesday, November 11, 9:30 a.m.

Jackson Memorial Hospital

Clinical Session with presentation of patients by orthopedists of Greater Miami.

Tuesday, November 11, 2:00 p.m.

7. "Fibrous Lesions of Bone" (Lantern Slides), JOHN P. ADAMS, Fellow in Orthopedic Surgery, National Foundation for Infantile Paralysis, and J. LEONARD GOLDNER, Assistant Professor of Orthopedic Surgery, Duke University School of Medicine, Durham, N. C.

   Discussion opened by Paul Thompson, Chattanooga, Tenn.

8. "The Gross Osteopathology of Arthritis" (Lantern Slides), WILLIAM J. TOBIN, Associate Professor of Orthopedic Surgery, Georgetown University School of Medicine, Washington, D. C.

   Discussion opened by Lent C. Johnson, Washington, D. C.

9. "Methods of Stabilizing the Paralytic Lower Extremity," T. CAMPBELL THOMPSON, Associate Professor of Surgery (Orthopedics), Cornell University Medical College, New York, N. Y.

Intermission

10. "The Treatment of Posttraumatic Paraplegia" (Lantern Slides), DANA M. STREET, Memphis, Tenn.

Discussion opened by Richard L. DeSaussure, Memphis, Tenn.

11. "The Mechanism of Compression Fractures of the Spine Due to Lifting Strains" (Lantern Slides), HERBERT W. VIRGIN, JR., Miami, Fla.

Discussion opened by Guy A. Caldwell, Professor of Orthopedics, Tulane University School of Medicine, New Orleans, La.

12. "Fractures of the Head of the Radius" (Lantern Slides), CHARLES J. FRANKEL, Associate Professor of Orthopedic Surgery, and J. HAMILTON ALLAN, Professor of Orthopedic Surgery, University of Virginia Department of Medicine, Charlottesville, Va.

Discussion opened by Paul H. Martin, Jacksonville, Fla.

Wednesday, November 12, 2:00 p.m.

13. "Tendon Transfers for Recurrent Clubfoot," EARNEST B. CARPENTER, Associate in Orthopedic Surgery, and SAMUEL H. HUFF, JR., Instructor in Orthopedic Surgery, Medical College of Virginia, Richmond, Va.

Discussion opened by Joseph Hiram Kite, Assistant Professor of Clinical Surgery (Orthopedics), Emory University School of Medicine, Atlanta, Ga.

14. "The Management of Tendon Injuries," SAMUEL BENJAMIN FOWLER, DON L. EYLER and GEORGE K. CARPENTER, Nashville, Tenn.

Discussion opened by Edward W. Cullipher, Miami, Fla.

15. Chairman's Address: "Recent Advances in the Field of Orthopedic Appliances and Prosthetics," RUFUS H. ALLDREDGE, Assistant Professor of Clinical Orthopedics, Tulane University School of Medicine, New Orleans, La.

Intermission

16. "Amputations of the Upper Extremity with Present Concepts of Prosthetic Replacement" (Lantern Slides), JOSEPH W. BATCH, Colonel, Medical Corps, U. S. Army; and AUGUST W. SPITTLER, Colonel, Medical Corps, U. S. Army; Chief, Orthopedic Section, Walter Reed Army Hospital, Washington, D. C.

Discussion opened by Arthur H. Weiland, Coral Gables, Fla.

17. "The Conservative Treatment of Cervical Disc Lesions and the Differential Diagnosis of Shoulder, Back and Neck Pain" (Scientific Exhibit), J. ALBERT KEY, Professor of Clinical Orthopedic Surgery, Washington University School of Medicine, and LEE T. FORD, JR., St. Louis, Mo.

Discussion opened by Hugh A. Thompson, Raleigh, N. C.

18. "Spinal Fusion for Fracture-Dislocation of the Cervical Spine" (Lantern Slides), H. FRANCIS FORSYTH, Assistant Professor of Orthopedic Surgery, and EBEN ALEXANDER, JR., Assistant Professor of Neurological Surgery, Bowman Gray School of Medicine, Winston-Salem, N. C.

Discussion opened by Bedford F. Boylston, Assistant Professor of Orthopedic Surgery, Baylor University College of Medicine, Houston, Tex.

Election of Officers.

SECTION ON GYNECOLOGY

Officers

Chairman—Curtis J. Lund, New Orleans, La.
Vice-Chairman—H. Hudnall Ware, Jr., Richmond, Va.
Secretary—Wm. Thomas Black, Jr., Memphis, Tenn.

Hosts from the Dade County Medical Association—Homer L. Pearson, Jr., Robert T. Spicer and Harry Kraff.

Presentations limited to fifteen minutes with fifteen minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. "The Present Status of Vaginal Hysterectomy," CARL S. McMURRAY, Clinical Professor of Gynecology, Meharry Medical College, Nashville, Tenn.

Discussion opened by C. Gordon Johnson, Associate Professor of Clinical Gynecology, Tulane University School of Medicine, New Orleans, La.

2. "Vaginal Hysterectomy in the Management of Pelvic Relaxation," WILLIS E. BROWN, Professor and Director of Department of Obstetrics and Gynecology, University of Arkansas School of Medicine, Little Rock, Ark.

Discussion opened by Waverly R. Payne, Newport News, Va.

3. "The Diagnosis and Treatment of Enterocele," RALPH E. CAMPBELL, Professor of Obstetrics and Gynecology, University of Wisconsin Medical School, Madison, Wis.

Intermission

4. "Evaluation of Thyroid Therapy on Ovarian Function: Clinical and Laboratory Studies" (Lantern Slides), W. O. JOHNSON, Professor and Head of the Departments of Obstetrics and Gynecology, and J. T. BRADBURY, Associate Professor of Obstetrics and Gynecology, University of Louisville School of Medicine, Louisville, Ky.

Discussion opened by Charles J. Collins, Orlando, Fla.

5. "Prevenception Insurance: Panhysterectomy versus Tubectomy," WALTER L. THOMAS, Associate Professor of Obstetrics and Gynecology, Duke University School of Medicine, Durham, N. C.

Discussion opened by Ralph W. Jack, Miami, Fla.

Wednesday, November 12, 2:00 p.m.

6. "Aureomycin in the Preoperative Preparation of the Vagina" (Lantern Slides), OLIVER DeLOZIER and LEON V. McVAY, JR., Assistant Professor of Medicine, University of Tennessee College of Medicine, Memphis, Tenn.

Discussion opened by R. B. Chrisman, Jr., Miami, Fla.

7. "Management of the Intersexuals," ROBERT N. CREADICK, Associate Professor of Obstetrics and Gynecology, Duke University School of Medicine, Durham, N. C.

Discussion opened by W. C. Winn, Associate Professor of Obstetrics, Medical College of Virginia, Richmond, Va.

8. Chairman's Address: "Uterine Curettage, Its Development and Use," CURTIS J. LUND, Professor of Obstetrics and Gynecology, Louisiana State University School of Medicine, New Orleans, La.

Intermission

9. "A Report on the Cytology of Fifty-Five Hundred Sets of Vaginal Smears," LEE F. TURLINGTON, Associate Professor of Clinical Gynecology, Medical College of Alabama, W. CLARE BARCLIFT and HUNTER M. BROWN, Birmingham, Ala.

Discussion opened by J. Ernest Ayre, Miami, Fla.

10. "Abdominal Colpo-Cystopexy for Complete Prolapse of the Vagina, Bladder and/or Uterus" (Lantern Slides), PAUL F. FLETCHER, Senior Instructor in Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis, Mo.

Discussion opened by Deborah Leary, Chapel Hill, N. C.

Election of Officers.

SECTION ON OBSTETRICS

Officers

Chairman—Hugh G. Hamilton, Kansas City, Mo.
Vice-Chairman—W. C. Winn, Richmond, Va.
Secretary—Leo J. Hartnett, St. Louis, Mo.

Hosts from the Dade County Medical Association—John D. Milton, George A. Mitchell and Edward F. Fox.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Tuesday, November 11, 9:00 a.m.

1. "The Functions and Duties of a Maternal Mortality Committee," MATTHEW W. WEIS, Assistant Professor of Clinical Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis, Mo.

Discussion opened by Louis H. Douglass, Professor of Obstetrics, University of Maryland School of Medicine, Baltimore, Md.

2. "Breech Delivery in Private Practice," ROBERT L. ALTER, Durham, N. C.

   Discussion opened by Garth L. Jarvis, Assistant Professor of Obstetrics and Gynecology, University of Texas Medical Branch, Galveston, Tex.

3. "Management of the Third Stage of Labor" (Lantern Slides), JOHN E. SAVAGE, Assistant Professor of Obstetrics, University of Maryland School of Medicine, Baltimore, Md.

   Discussion opened by H. Hoffman Groskloss, Miami, Fla.

Intermission

4. Chairman's Address: "Iron Metabolism in the Anemias of Pregnancy" (Lantern Slides), HUGH G. HAMILTON, ROBERT S. HIGGINS and WEBB S. ALSOP, JR., Kansas City, Mo.

5. "The Immediate Treatment of Incomplete Abortion" (Lantern Slides), ORIN L. DAVIDSON, JR., WILLIAM P. MAURY, JR. and JAMES L. SEALE, Memphis, Tenn.

   Discussion opened by J. W. Vieaux, Dallas, Tex.

Wednesday, November 12, 9:00 a.m.

SYMPOSIUM ON CESAREAN SECTION

6. "A Study of the Fetal Mortality in Cesarean Sections" (Lantern Slides), JOHN A. KING, Instructor in Obstetrics and Gynecology, E. L. KING, Professor Emeritus of Obstetrics, Tulane University School of Medicine, and McCOY B. PITT, New Orleans, La.

7. "The Cesarean Section Which Should Have Been Done," SEWARD H. WILLS, Professor of Gynecology, Baylor University College of Medicine, Houston, Tex.

8. "Certain Aspects of the Cesarean Problem" (Lantern Slides), DONALD G. TOLLEFSON, Associate Clinical Professor of Obstetrics and Gynecology, University of Southern California School of Medicine, Los Angeles, Calif.

   Papers in Symposium discussed by Williams McC. Bryan, Jr., Columbia, S. C.; W. C. Winn, Associate Professor of Obstetrics, Medical College of Virginia, Richmond, Va.; Stanley T. Garber, Professor of Obstetrics, University of Cincinnati College of Medicine, Cincinnati, O.

Intermission

9. "The Advantages of X-Ray Diagnosis in Pregnancy" (Lantern Slides), ROBERT H. BARTER, Associate Professor of Obstetrics and Gynecology, and JOHN L. PARKS, Professor of Obstetrics and Gynecology, George Washington University School of Medicine, Washington, D. C.

   Discussion opened by E. Lee Dorsett, Assistant Professor of Clinical Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis, Mo.

10. "Microscopic Changes of the Cervix in Pregnancy" (Lantern Slides), OSCAR J. HAYES, Associate and Department Executive, Department of Obstetrics and Gynecology, University of Louisville School of Medicine, Louisville, Ky.

    Discussion opened by Willis E. Brown, Professor of Obstetrics and Gynecology, University of Arkansas School of Medicine, Little Rock, Ark.; Richard H. Fischer, Washington, D. C.

Election of Officers.

SECTION ON UROLOGY

Officers

Chairman—Harold P. McDonald, Atlanta, Ga.
Vice-Chairman—Harold A. O'Brien, Dallas, Tex.
Secretary—A. Keller Doss, Fort Worth, Tex.

Hosts from the Dade County Medical Association—Milton M. Coplan, E. Clay Shaw and Willard L. Fitzgerald.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

Florida Day

1. "Experiences with Retropubic Prostatectomy," S. JOSEPH PEARLMAN, Miami, Fla.

   Discussion opened by Lawrence P. Thackston, Orangeburg, S. C.

2. "Vesical Neck Obstructions in Paraplegics" (Lantern Slides), RAYMOND J. FITZPATRICK, LOUIS M. ORR, and JOSEPH C. HAYWARD, Orlando, Fla.

   Discussion opened by Harold A. O'Brien, Dallas, Tex.

3. "Torsion of the Testis" (Lantern Slides), RUSSELL B. CARSON, Fort Lauderdale, Fla.

   Discussion opened by William C. Lott, Asheville, N. C.

Intermission

4. "Vesical Neck Obstructions in Females," (Lantern Slides), ROBERT B. McIVER, W. A. VAN NORTWICK and ROBERT J. BROWN, Jacksonville, Fla.

   Discussion opened by W. E. Kittredge, Jr., New Orleans, La.

5. "A Discussion of Renal Tumors" (Lantern Slides), MILTON M. COPLAN, FRANK M. WOODS and PERRY D. MELVIN, Miami, Fla.

   Discussion opened by Hugh T. Beacham, New Orleans, La.

6. "Modified Suprapubic Prostatectomy" (Lantern Slides), EDWIN W. BROWN, West Palm Beach, Fla.

   Discussion opened by Robert Lich, Jr., Louisville, Ky.

Tuesday, November 11, 1:45 p.m.

Joint Session, Section on Urology, Section on Radiology and Section on Pediatrics

7. PYELOGRAM CLINIC, Panel Discussion on "Urological Problems in Children," T. LEON HOWARD, Denver, Colo., Moderator.

   Representing Urology: MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

   Representing Pediatrics: JAMES G. HUGHES, Chairman, Section on Pediatrics, Memphis, Tenn.

   Representing Radiology: WENDELL G. SCOTT, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Mo.

8. "Genital Anomalies in Children," MEREDITH F. CAMPBELL, Professor of Urology, New York University Post-Graduate Medical School, New York, N. Y.

Intermission

9. "The Differential Diagnosis of Human Histoplasmosis," AMOS CHRISTIE, Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn.

10. "The Role of Coxsackie Viruses in Human Disease" (Lantern Slides), EDWARD C. CURNEN, Professor of Pediatrics, University of North Carolina School of Medicine, Chapel Hill, N. C.

Wednesday, November 12, 2:00 p.m.

11. Chairman's Address: "Congenital Obstructions in the Genitourinary System" (Lantern Slides), HAROLD P. McDONALD, Atlanta, Ga.

12. "Urinary Disturbances of Genital Origin in Women" (Lantern Slides), LUIS F. RODRIGUEZ MOLINA, Professor and Head of the Department of Genito-Urinary Diseases, University of Havana School of Medicine, Havana, Cuba.

13. "Treatment of Urethritis in the Female: A New Etiological Concept" (Lantern Slides), CHARLES A. EBERHART, Atlanta, Ga., JOHN P. HILL and JOSEPH H. BRANNEN, Albany, Ga.

    Discussion opened by James D. Moffett, Daytona Beach, Fla.

Intermission

14. "Treatment of Testicular Tumors" (Lantern Slides), J. C. KIMBROUGH, Colonel, Medical Corps, U. S. Army; Chief, Urology Section, and ANTHONY A. BORSKI, Captain, Medical Corps, U. S. Army; Urology Section, Walter Reed Army Hospital, Washington, D. C.

    Discussion opened by John F. Patton, Assistant Professor of Clinical Genito-Urinary Surgery, Washington University School of Medicine, St. Louis, Mo.

15. "Vertical Flap Ureteropelvioplasty" (Lantern Slides and Motion Picture), PETER L. SCARDINO and CHARLES L. PRINCE, Savannah, Ga.

    Discussion opened by Major F. Fowler, Atlanta, Ga.

16. "Management of Patients with Polycystic Disease on an Ambulatory Basis" (Lantern Slides), JOHN H. DOUGHERTY, Knoxville, Tenn.

Discussion opened by H. Haynes Baird, Charlotte, N. C.

Election of Officers.

SECTION ON PROCTOLOGY

Officers

Chairman—Ronald F. Elkins, Springfield, Mo.
Vice-Chairman—Claude G. Mentzer, Miami, Fla.
Secretary—A. M. Phillips, Macon, Ga.

Hosts from the Dade County Medical Association—Claude G. Mentzer, Ralph F. Allen and Alexander E. Rosenberg.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. Chairman's Address: "Pre- and Postoperative Care in Proctology," RONALD F. ELKINS, Springfield, Mo.

2. "Factitial Proctitis," FRED B. HODGES, JR., Atlanta, Ga.

Discussion opened by W. C. Wallace, Greenville, S. C.

3. "Proctology: Twenty Years Ago and Now," JOHN J. CHELEDEN, Daytona Beach, Fla.

Discussion opened by Claude G. Mentzer, Miami, Fla.

Intermission

4. "The Control of Postoperative Pain in Anorectal Surgery" (Scientific Exhibit), CLAUDE C. TUCKER, Wichita, Kan.

Discussion opened by Ronald F. Elkins, Springfield, Mo.

5. "Adenomatous Polyps of the Colon," DAUGH W. SMITH, Assistant Professor of Clinical Surgery, Vanderbilt University School of Medicine, and Associate Professor of Surgery (Proctology), Meharry Medical College, and DAPHINE SPROUSE, Resident Surgeon, St. Thomas Hospital, Nashville, Tenn.

Discussion opened by Enrique Figares, Havana, Cuba.

Tuesday, November 11, 2:00 p.m.

6. "Proctologic Facts and Observations," NEWTON D. SMITH, Associate Professor of Proctology, University of Minnesota Graduate School of Medicine, and President, American Proctologic Society, Rochester, Minn.

7. "The Newer Antibiotics in the Treatment of Rectal Strictures of Lymphogranuloma Venereum" (Lantern Slides), LEON BANOV, JR., Associate in Surgery, Medical College of the State of South Carolina, Charleston, S. C.

Discussion opened by Edgar Boling, Atlanta, Ga.

8. "Elective Proctologic Surgery in the Aged," B. RICHARD JACKSON, Raleigh, N. C.

Discussion opened by Julius E. Linn, Assistant Professor of Surgery (Proctology), Medical College of Alabama, Birmingham, Ala.

Intermission

9. "Hemorrhoids, A Cause of Anemia," VINCENT T. YOUNG and RALPH NICHOLS, Knoxville, Tenn.

Discussion opened by H. M. Frykman, Minneapolis, Minn.

10. "Anoplasty versus Hemorrhoidectomy" (Motion Picture), MARK M. MARKS, Kansas City, Mo.

Discussion opened by Dean W. Hart, St. Petersburg, Fla.

Election of Officers.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Officers

Chairman—Edley H. Jones, Vicksburg, Miss.
Chairman-Elect—K. W. Cosgrove, Little Rock, Ark.
Vice-Chairman—Lyle M. Sellers, Dallas, Tex.
Secretary—F. A. Holden, Baltimore, Md.

Hosts from the Dade County Medical Association—Bascom H. Palmer, Ralph E. Kirsch, Carl E. Dunaway and Gail E. Chandler.

Presentations limited to twenty minutes including time required for lantern slides and/or motion pictures, the Chairman and out-of-territory essayists to be allowed thirty minutes. Discussion will be omitted but each paper will be followed by a question and answer period.

Tuesday, November 11, 9:00 a.m.

1. "Survey of Motility Implants" (Lantern Slides), JOHN O. MARTIN, Assistant in Ophthalmology, Medical College of Alabama, Birmingham, Ala.

2. Chairman's Address: "Better Tonsil and Adenoid Surgery: Fewer Postoperative Hemorrhages" (Lantern Slides), EDLEY H. JONES, Vicksburg, Miss.

3. "The Diagnosis and Treatment of the More Common Injuries to the Eyes" (Lantern Slides), CLYDE A. CLAPP, Associate Professor Emeritus of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, Md.

4. "Management of Maxillary Sinusitis in Children," FRANK L. BRYANT, Shreveport, La.

Intermission

5. "Recurrent Pterygium" (Lantern Slides), ALFRED A. NISBET, Associate Professor of Clinical Ophthalmology, Baylor University Postgraduate School of Medicine, San Antonio Branch, and Instructor in Ophthalmology, University of Texas Postgraduate School of Medicine, San Antonio Branch, San Antonio, Tex.

6. "Differential Diagnosis of Deafness" (Lantern Slides), LUCIAN W. ALEXANDER, Assistant Professor of Clinical Otology and Laryngology, Tulane University School of Medicine, New Orleans, La.

7. "Ocular Lesions in Children Simulating Retinoblastoma," J. JACK STOKES, Clinical Associate in Ophthalmology, Emory University School of Medicine, Atlanta, Ga.

Wednesday, November 12, 9:00 a.m.

8. "The Medical Treatment of Chronic Otitis Media" (Lantern Slides), RICHARD A. BAGBY and J. BROWN FARRIOR, Tampa, Fla.

9. "The Uses and Abuses of Therapeutic Agents in Ophthalmology," ALSON E. BRALEY, Professor of Ophthalmology, State University of Iowa College of Medicine, Iowa City, Ia.

10. "Allergy in Ear, Nose and Throat," GORDON J. McCURDY, Coral Gables, Fla.

11. "Surgical Treatment of Tumors of the Eyelid" (Lantern Slides), LARRY TURNER and S. D. McPHERSON, JR., Durham, N. C.

Intermission

12. "Plastic Approach to Major Lesions of the Head and Neck" (Lantern Slides), CLIFFORD C. SNYDER and T. G. BLOCKER, JR., Professor of Plastic and Maxillofacial Surgery, University of Texas Medical Branch, Galveston, Tex.

13. "Duane's Syndrome: A Strabismus Problem" (Lantern Slides), ROLAND H. MYERS, Memphis, Tenn.

14. "The Changing Picture in Otitis Media and Mastoiditis" (Lantern Slides), PETER N. PASTORE, Professor of Otology, Rhinology and Laryngology, Medical College of Virginia, Richmond, Va.

Thursday, November 13, 9:00 a.m.

15. "The Development of Vision with its Application to Muscle Anomalies" (Lantern Slides), GEORGE ELLIS and RICHEY L. WAUGH, Instructors in Ophthalmology, Louisiana State University School of Medicine, New Orleans, La.

16. "The Surgical Treatment of Hemifacial Spasm" (Motion Picture), GUNNER O. PROUD, Professor and Chairman of the Department of Otolaryngology, University of Kansas School of Medicine, Kansas City, Kan.

17. "Methyl Cellulose in Ophthalmology," ROBERT C. WELSH, Miami, Fla.

18. "Destructive Lesions of the Temporal Bone" (Lantern Slides), RALPH A. ARNOLD, Associate Professor of

Otolaryngology, and GEORGE J. BAYLIN, Associate Professor of Radiology, Duke University School of Medicine, Durham, N. C.

Election of Officers.

Intermission

19. "Cortisone in Ophthalmology: Clinical Evaluation of the Therapeutic Results" (Lantern Slides), LOUIS A. BREFFEILH, Shreveport, La.

20. "A One-Stage Wide-Field Surgical Procedure for the Relief of Extensive Carcinoma of the Larynx Involving the Tongue, Pharynx, Hypotharynx and Neck" (Lantern Slides), DONALD A. CORGILL, Clinical Instructor in Otolaryngology, and ROBERT P. HAYS, Clinical Assistant Professor of Surgery, Southwestern Medical School of the University of Texas (Dallas), McKinney, Tex.

21. "Changing Concepts in the Differential Diagnosis and Complications of Orbital Inflammation" (Lantern Slides), ARTHUR H. KEENEY, Clinical Instructor in Ophthalmology, University of Louisville School of Medicine, Louisville, Ky.

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY

Southern Section

A. E. Meisenbach, Jr., Secretary, Dallas, Tex., presiding. Kenneth S. Whitmer, Local Chairman, Miami, Fla.

Joint Dinner Meeting with the Section on Ophthalmology and Otolaryngology, Southern Medical Association.

Tuesday, November 11, 6:30 p.m.

1. "Known Physiology and Pathology of Retinal Detachments" (Lantern Slides), GEORGE M. HAIK, Professor and Head of the Department of Ophthalmology, and WOOD LYDA, Instructor in Ophthalmology, Louisiana State University School of Medicine, New Orleans, La.

2. "Basic Principles of Irradiation as Applied to the Treatment of the Anterior Ocular Segment" (Lantern Slides), CHARLES E. ILIFF, Assistant Professor of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, Md.

3. "Comparative Effects of Cortisone upon Rabbit Eyes Treated by Cyclodiathermy and Cycloelectrolysis" (Lantern Slides), L. BENJAMIN SHEPPARD, Assistant Professor of Clinical Ophthalmology, Medical College of Virginia, Richmond, Va.

4. "The Untoward Effects of Cortone® Acetate on the Healing Process in the Eye" (Lantern Slides), SEYMOUR B. GOSTIN, Clinical Instructor in Ophthalmology, Southwestern Medical School of the University of Texas (Dallas), McKinney, Tex.

SECTION ON ANESTHESIOLOGY

Officers

Chairman—R. M. S. Barrett, Clayton, Mo.
Vice-Chairman—Albert J. Ochsner, II, Alexandria, La.
Secretary—Earl F. Weir, Dallas, Tex.

Hosts from the Dade County Medical Association—Colquitt Pearson, Maurice P. Cooper and George C. Austin.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Wednesday, November 12, 2:00 p.m.

1. Chairman's Address: "Anesthesiology: Its Horizons," R. M. S. BARRETT, Clayton, Mo.

2. "Selective Method of Anesthesia in Abdomino-Thoracic Surgery" (Lantern Slides and Motion Picture), R. MENDEZ PENATE, Consulting Anesthetist, General Calixto Garcia Hospital, University of Havana School of Medicine, Havana, Cuba.

3. "Pre- and Postoperative Care in Air Force Hospitals," FRED C. DYE, Lieutenant Colonel, U. S. Air Force, Medical Corps, Sampson Air Force Base, Geneva, N. Y.

4. "Segmental High Spinal at D-1 for Thoracic Surgery in the Tubular Patient" (Lantern Slides), B. C. SWORD, Chief of Anesthesiology, Veterans Administration Hospital, Oteen, N. C.

5. "Rectal Paraldehyde," STANLEY H. AXELROD, Miami, Fla.

Thursday, November 13, 2:00 p.m.

6. "A Clinical Study of a Balanced Anesthesia Mixture" (Scientific Exhibit), SYLVAN M. SHANE and HARRY ASHMAN, Anesthetists, Lutheran Hospital of Maryland, Baltimore, Md.

7. "Cardiac Arrest, with the Possibility of Ether as the Causative Factor," EARL F. WEIR, Clinical Professor of Anesthesiology, Southwestern Medical School of the University of Texas, and Chief of Anesthesiology Service, Baylor Hospital, Dallas, Tex.

(Remainder of program in preparation.)

Election of Officers.

SECTION ON PUBLIC HEALTH

Officers

Chairman—W. L. Treuting, New Orleans, La.
Vice-Chairman—J. W. R. Norton, Raleigh, N. C.
Secretary—Kirk T. Mosley, Norman, Okla.

Hosts from the Dade County Medical Association—T. Elam Cato, George E. Lacy and Newell J. Griffith.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. Chairman's Address: "Developments in Public Health in the Southern United States," W. L. TREUTING, Professor of Public Health Administration, Tulane University School of Medicine, New Orleans, La.

2. "Diabetes and Tuberculosis" (Lantern Slides), ANGEL READUD, Professor of Public Health and Preventive Medicine, University of Havana School of Medicine, and President of Colegio Medico de la Habana (Havana Medical Association), Havana, Cuba.

   Discussion opened by E. R. Smith, Director, Division of Nutrition and Diabetes Control, Florida State Board of Health, Jacksonville, Fla.

3. "Comments on the Present-Day Management of Syphilis" (Lantern Slides), R. H. KAMPMEIER, Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

   Discussion opened by Maurice Kamp, Baltimore, Md.

Intermission

4. "The Midwife: Should She Be Controlled, Ignored or Eliminated?" (Lantern Slides), EVA F. DODGE, Associate Professor of Obstetrics and Gynecology, University of Arkansas School of Medicine, Little Rock, Ark.

   Discussion opened by Sidney Shaw Chipman, Professor of Maternal and Child Health, University of North Carolina School of Medicine, Chapel Hill, N. C.

5. "The Georgia Civil Defense Plan for the Treatment of Mass Casualties" (Lantern Slides), E. M. DUNSTAN, Atlanta, Ga.

6. "Report on the Psittacosis Problem in Florida," L. L. PARKS, Bureau of Preventable Diseases, Florida State Board of Health, Jacksonville, Fla.

   Discussion opened by W. J. Murphy, Director, Division of Epidemiology, Georgia Department of Public Health, Atlanta, Ga.

Tuesday, November 11, 2:00 p.m.

7. "General Practice in Public Health Through Local Health Departments," J. W. R. NORTON, Secretary and State Health Officer, North Carolina State Board of Health, Raleigh, N. C.

   Discussion opened by R. H. Riley, Director, Maryland State Department of Health, Baltimore, Md.

8. "Program of Tuberculosis Control in Recent Years" (Lantern Slides), C. M. SHARP, Director, Bureau of Tuberculosis Control, Florida State Board of Health, Jacksonville, Fla.

   Discussion opened by W. H. Y. Smith, Associate Professor of Preventive Medicine and Public Health, Medical College of Alabama (Birmingham), and Director of the Bureau of Preventable Diseases, Alabama State Department of Public Health, Montgomery, Ala.

9. "Public Health and Preventive Medicine in the American Tropics" (Lantern Slides), E. HAROLD HINMAN, Dean, University of Puerto Rico School of Medicine, School of Tropical Medicine, San Juan, Puerto Rico.

   Discussion opened by Homer F. Marsh, Associate Dean, University of Miami Medical School, Miami, Fla.

Intermission

10. "Recent Developments in the Epidemiology of Histoplasmosis" (Lantern Slides), L. D. ZEIDBERG, Williamson County Tuberculosis Study, Department of Public Health, Franklin, Tenn.

Discussion opened by H. C. Schenck, Director, Division of Tuberculosis Control, Georgia Department of Public Health, Atlanta, Ga.

11. "Detection of Carcinoma of the Stomach in Patients with Pernicious Anemia: A Review" (Lantern Slides), ROBERT M. BIRD, Associate Professor of Medicine, University of Oklahoma School of Medicine, Oklahoma City, Okla.

Discussion opened by Joseph E. Schenthal, New Orleans, La.

12. "The Changing Problems in Public Health," WILSON T. SOWDER, State Health Officer, Florida State Board of Health, Jacksonville, Fla.

Discussion opened by Ben F. Wyman, State Health Officer, South Carolina State Board of Health, Columbia, S. C.

Election of Officers.

SECTION ON MEDICAL EDUCATION AND HOSPITAL TRAINING

Officers

Chairman—D. S. Pankratz, University, Miss.
Vice-Chairman—Frank R. Lock, Winston-Salem, N. C.
Secretary—John B. Truslow, Richmond, Va.

Hosts from the Dade County Medical Association—Bascom H. Palmer, Homer F. Marsh and Charles C. Hillman.

Presentations limited to twenty minutes with ten minutes for discussion—thirty-minute periods.

Monday, November 10, 2:00 p.m.

1. "Medical Education in Cuba," ANGEL VIETA, Dean, University of Havana School of Medicine, Havana, Cuba.

2. Panel Discussion on General Practice, PAUL WILLIAMSON, Director of General Practice Clinic, University of Tennessee College of Medicine, Memphis, Tenn., Moderator. Panel Members: D. G. MILLER, JR., Morgantown, Ky.; W. H. ANDERSON, Booneville, Miss.; JOHN R. BENDER, Winston-Salem, N. C.; WALTER E. MURPHREE, Gainesville, Fla.; and HOMER F. MARSH, Associate Dean, University of Miami Medical School, Miami, Fla.

Tuesday, November 11, 2:00 p.m.

3. Chairman's Address: "The Mississippi State Medical Scholarship Program," D. S. PANKRATZ, Dean, University of Mississippi School of Medicine, University, Miss.

4. Panel Discussion on Internships, ROBERT CADMUS, Director, University Hospital, University of North Carolina School of Medicine, Chapel Hill, N. C., Moderator. Panel Members: EDGAR HULL, Professor of Medicine, Louisiana State University School of Medicine, New Orleans, La.; CHARLES P. CARDWELL, Hospital Director, Medical College of Virginia Hospitals, Richmond, Va.; and R. H. OPPENHEIMER, Professor of Clinical Medicine, Emory University School of Medicine, Atlanta, Ga.

Election of Officers.

AMERICAN COLLEGE OF CHEST PHYSICIANS

Southern Chapter

Meeting conjointly with Southern Medical Association

Officers

President—Hollis E. Johnson, Nashville, Tenn.
First Vice-President—Duane Carr, Memphis, Tenn.
Second Vice-President and Chairman, Program Committee—John S. Harter, Louisville, Ky.
Secretary-Treasurer—Alfred Goldman, St. Louis, Mo.
Executive Council—Dean B. Cole, Chairman, Richmond, Va.; David H. Waterman, Knoxville, Tenn.; M. Jay Flipse, Miami, Fla.; and Hollis E. Johnson, Nashville, Tenn.

Local Committee on Arrangements—Howard K. Edwards, Chairman, DeWitt C. Daughtry and M. Jay Flipse, Miami, Fla.

Presentations limited to twenty minutes, discussion open to members and guests.

Sunday, November 9, 9:30 a.m.

Scientific Session, Medical Section, SYDNEY JACOBS, New Orleans, La., Chairman, presiding.

1. "The Use of Isonicotinic Acid Derivatives in the Treatment of Tuberculosis" (Lantern Slides), MORTON M. ZISKIND, EMORY CALOVICH, JOHN JOFFKO and SYDNEY JACOBS, Assistant Professor of Clinical Medicine, Tulane University School of Medicine, New Orleans, La.

2. "Sarcoidosis: Current Concepts of Etiology and Diagnosis," MAX MICHAEL, JR., Associate Professor of Medicine, Emory University School of Medicine, Atlanta, Ga.

3. "The Treatment of Pulmonary Histoplasmosis" (Lantern Slides), JOHN H. SEABURY, Associate Professor of Medicine, Louisiana State University School of Medicine, New Orleans, La.

4. "The Cardiac Mimics of Pulmonary Disease: Diagnostic Value of Angiocardiography," ALBERT L. HYMAN, New Orleans, La.

Sunday, November 9, 2:00 p.m.

Scientific Session, Surgical Section, EDWARD PARKER, Charleston, S. C., Chairman, presiding.

5. "Resection for Mycotic Pulmonary Disease" (Lantern Slides), FELIX A. HUGHES, JR., HOWARD W. WHITAKER, CONIE C. LOWERY, JOHN W. POLK, FRANK E. FOLEY and JOHN R. FOX, Memphis, Tenn.

6. "Cystic Diseases of the Lung" (Lantern Slides), FRANCIS M. WOODS, Assistant Professor of Surgery, Tufts College Medical School, Boston, Mass.

7. "Right Cardiophrenic Lesions," DEWITT C. DAUGHTRY and JOHN G. CHESNEY, Miami, Fla.

8. "Partial Thoracoplasty and Suture Constriction of the Upper Lobe in the Treatment of Pulmonary Tuberculosis (Paulino Procedure)" (Lantern Slides and Motion Picture), PAUL T. DECAMP, Assistant Professor of Surgery, Tulane University School of Medicine, New Orleans, La., and THOMAS G. BAFFES, Chicago, Ill.

6:30 p.m.—Social Hour.

7:30 p.m.—President's Banquet, CARL C. AVEN, Atlanta, Ga., Toastmaster.

9. President's Address: "The Doctor's Obligation and Privilege as a Citizen," HOLLIS E. JOHNSON, Associate Professor of Clinical Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

X-Ray Conference, DUANE CARR, Memphis, Tenn., Moderator.

Monday, November 10, 9:30 a.m.

Scientific Session, DUANE CARR, Memphis, Tenn., presiding.

10. "Pneumonioconiosis in Soft Coal Miners in Alabama" (Lantern Slides), LOUIS L. FRIEDMAN, Birmingham, Ala.

11. "Dyspnea of Pulmonary Emphysema," GEORGE R. MENEELY, Associate Professor of Medicine, ROSS C. KORY, Instructor in Medicine, and ROBERT A. GOODWIN, Assistant Professor of Clinical Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

Monday, November 10, 12:00 noon

Luncheon Meeting, HOLLIS E. JOHNSON, President, Southern Chapter, Nashville, Tenn., presiding.

12. "Histoplasmosis," AMOS CHRISTIE, Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn.

Business Meeting.

Report of Committees.

Election of Officers.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

Twenty-Eighth Annual Meeting

Columbus Hotel

Officers

President—Mrs. V. Eugene Holcombe, Charleston, W. Va.
President-Elect—Mrs. Richard F. Stover, Miami, Fla.
First Vice-President—Mrs. Stanley A. Hill, Corinth, Miss.
Second Vice-President—Mrs. Shelby G. Carr, Richmond, Ky.
Third Vice-President—Mrs. Ridings E. Lee, Dallas, Tex.
Recording Secretary—Mrs. Harry M. Gilkey, Kansas City, Mo.
Corresponding Secretary—Mrs. Charles N. Slater, Clarksburg, W. Va.
Treasurer—Mrs. Louis K. Hundley, Pine Bluff, Ark.
Historian—Mrs. Harvey F. Garrison, Jackson, Miss.
Parliamentarian—Mrs. James N. Brawner, Atlanta, Ga.

Executive Committee—
Mrs. V. Eugene Holcombe, Chairman, Charleston, W. Va.
Mrs. Arthur A. Herold, Shreveport, La.
Mrs. L. S. Thompson, Dallas, Tex.
Mrs. Louis K. Hundley, Pine Bluff, Ark.
Mrs. Charles N. Slater, Clarksburg, W. Va.

Standing Committees—
Budget—Mrs. John W. Turner, Atlanta, Ga.
Custodian of Records—Mrs. W. W. Potter, Knoxville, Tenn.
Doctor's Day—Mrs. Edgar M. Dunstan, Atlanta, Ga.
Jane Todd Crawford Memorial Scholarship Loan Fund—Mrs. J. Ullman Reaves, Mobile, Ala.
Research and Romance of Medicine—Mrs. Charles P. Corn, Greenville, S. C.
Revisions—Mrs. M. I. Mendeloff, Charleston, W. Va.
Resolutions—Mrs. W. M. Salter, Anniston, Ala.

Special Committees—
Necrology—Mrs. Edward H. Hipps, Charlotte, N. C.
Official Emblem—Mrs. Joseph W. Kelso, Oklahoma City, Okla.; Mrs. George D. Feldner, New Orleans, La.
Handbook—Mrs. Richard F. Stover, Miami, Fla.
Survey for New Projects—Mrs. James N. Brawner, Atlanta, Ga.
History—Mrs. A. T. McCormack, Louisville, Ky.
Press Notices—Mrs. A. P. Hudgins, Charleston, W. Va.
Courtesy—Mrs. L. S. Thompson, Dallas, Tex.
Awards—Mrs. Oscar W. Robinson, Paris, Tex.

Sunday, Monday, Tuesday and Wednesday, November 9, 10, 11 and 12

Registration, Columbus Hotel, Sunday 2:00 to 4:00 p.m., Monday 10:00 a.m. to 4:00 p.m., Tuesday 9:00 a.m. to 4:00 p.m. and Wednesday 9:00 a.m. to 11:00 a.m.

Sunday, November 9

Columbus Hotel

Executive Committee Luncheon Meeting, (1:00 p.m.) Mrs. V. Eugene Holcombe, President, presiding.

Meeting of Nominating Committee (3:00 p.m.), Mrs. H. E. Christenberry, Chairman, Knoxville, Tenn.

Monday, November 10

Columbus Hotel

Committee Meetings

11:00 a.m.—Doctor's Day Scrap Book and Awards Committee, Mrs. Oscar W. Robinson, Chairman, Paris, Tex.

11:00 a.m.—Resolutions Committee, Mrs. W. M. Salter, Chairman, Anniston, Ala.

11:30 a.m.—Revisions Committee, Mrs. M. I. Mendeloff, Chairman, Charleston, W. Va.

11:30 a.m.—Budget Committee, Mrs. John W. Turner, Chairman, Atlanta, Ga.

3:00 p.m.—Research and Romance of Medicine Committee, Mrs. Charles P. Corn, Greenville, S. C.

3:00 p.m.—Jane Todd Crawford Memorial Scholarship Loan Fund, Mrs. J. Ullman Reaves, Chairman, Mobile, Ala.

3:30 p.m.—Hand Book Committee, Mrs. Richard F. Stover, Chairman, Miami, Fla.

3:30 p.m.—Special History Committee, Mrs. A. T. McCormack, Chairman, Louisville, Ky. Meeting with the Committee, Mrs. Harvey F. Garrison, Historian, and Mrs. W. W. Potter, Custodian of Records.

4:00 p.m.—Press Notices, Mrs. A. P. Hudgins, Chairman, Charleston, W. Va.

4:00 p.m.—Official Emblem Committee, Mrs. Joseph W. Kelso, Chairman, Oklahoma City, Okla.; Mrs. George D. Feldner, Co-Chairman, New Orleans, La.

6:00 p.m.—Doctor's Day Committee, Mrs. E. M. Dunstan, Chairman, Atlanta, Ga.; Mrs. Maynard R. Emlaw, Co-Chairman, Richmond, Va.

8:00 p.m.—Program for Southern Medical Association Auxiliary. Survey Committee for New Projects, Mrs. James N. Brawner, Chairman, Atlanta, Ga.

Monday, November 10, 12:30 p.m.

Columbus Hotel

Luncheon for Past Presidents. Mrs. L. S. Thompson, Dallas, Tex., Chairman of Arrangements.

Monday, November 10, 1:00 p.m.

Columbus Hotel

Councilors and Vice-Councilors Luncheon and Round-Table, Mrs. Richard F. Stover, Miami, Fla., Chairman of Arrangements. (Tickets at Registration.)

Tuesday, November 11, 8:00 a.m.

Biscayne Terrace Hotel

Executive Board Meeting and Breakfast, Woman's Auxiliary to the Southern Medical Association, Mrs. V. Eugene Holcombe, President, presiding.

Invocation—Mrs. Harvey F. Garrison, Jackson, Miss.

Greetings—Dr. R. J. Wilkinson, President, Southern Medical Association, Huntington, W. Va.; Dr. R. L. Sanders, Chairman, Advisory Committee, Memphis, Tenn.

Presentation of members of the Advisory Committee.

Reports and Recommendations by Officers, Chairmen and Councilors.

Tuesday, November 11, 9:30 a.m.

General Meeting

Columbus Hotel, Pan American Room

Mrs. V. Eugene Holcombe, President, presiding.

All ladies attending the Southern Medical Association meeting are cordially invited to attend.

Call to order by the President.

Invocation—Rev. Cecil A. Denney, Pastor, First Christian Church, Miami, Fla.

Pledge of Allegiance to the Flag, led by Mrs. William E. Bray, Jr., Huntington, W. Va.

The American's Creed, led by Mrs. H. E. Christenberry, Knoxville, Tenn.

The National Anthem, led by Mrs. Charles P. Corn, Greenville, S. C. Pianist, Mrs. George W. Owen, Jackson, Miss.

Greetings—
Dr. R. J. Wilkinson, President, Southern Medical Association, Huntington, W. Va.

Dr. Alphonse McMahon, First Vice-President, Southern Medical Association, St. Louis, Mo.

Dr. R. L. Sanders, Chairman, Advisory Committee, Memphis, Tenn.

Dr. Ralph S. Sappenfield, President, Dade County Medical Association, Miami, Fla.

Dr. Robert B. McIver, President, Florida Medical Association, Jacksonville, Fla.

Addresses of Welcome—
Mrs. Thomas C. Kenaston, President-Elect, Woman's Auxiliary, Florida Medical Association, Cocoa, Fla., representing Mrs. Herschel G. Cole, President, Woman's Auxiliary, Florida Medical Association, Tampa, Fla.

Mrs. Willard L. Fitzgerald, President, Woman's Auxiliary, Dade County Medical Association, Miami, Fla.

Mrs. J. C. Davis, acting State Councilor from Florida for the Woman's Auxiliary, Southern Medical Association, Quincy, Fla.

Response to the Addresses of Welcome—Mrs. Olin S. Cofer, Atlanta, Ga.

Presentation of Pages—Mrs. Milton M. Coplan, Chairman, Miami, Fla.

Presentation of Sponsors for Distinguished Guests—Mrs. Edward F. Fox, Miami, Fla.

Presentation of Distinguished Guests—Mrs. Richard F. Stover, President-Elect, Woman's Auxiliary, Southern Medical Association, Miami, Fla.; Mrs. Ralph B. Eusden, President, Woman's Auxiliary, American Medical Association, Long Beach, Calif.; Mrs. John F. McCuskey, Immediate Past President, Woman's Auxiliary, West Virginia State Medical Association, and Regional Chairman of Nurse Recruitment, Woman's Auxiliary, American Medical Association, Clarksburg, W. Va.

Presentation of Past Presidents, Woman's Auxiliary, Southern Medical Association, Officers of American Medical Associa-

tion Auxiliary, and Presidents of Auxiliaries to State Medical Associations.

Presentation of Mrs. W. W. Crawford, Hattiesburg, Miss., representing charter members of the Woman's Auxiliary to the Southern Medical Association, organized November 1924.

Announcements by General Chairman of Committee for Visiting Ladies—Mrs. Willard L. Fitzgerald, Miami, Fla.

Registration Committee—Mrs. Julius Alexander, Chairman, Miami, Fla.

Reading of Minutes of 1951 Meeting—Mrs. Harry M. Gilkey, Recording Secretary, Kansas City, Mo.

Roll Call of Officers, Chairmen, Councilors, Past Presidents and Charter Members.

Reading of Correspondence—Mrs. Charles N. Slater, Corresponding Secretary, Clarksburg, W. Va.

Convention Rules of Order—Mrs. S. W. Parks, Fairmont, W. Va.

Nominating Committee—Mrs. H. E. Christenberry, Knoxville, Tenn.

Auditing Committee—Mrs. Olin S. Cofer, Atlanta, Ga.

Naming of Convention Program Aides, Time Keepers—Mrs. A. L. O'Briant, Chairman, Raeford, N. C.; Mrs. F. A. Holden, Baltimore, Md.; Mrs. Graham Asher, Kansas City, Mo.; Mrs. James A. Ryan, Covington, Ky.; and Mrs. Fred W. Horn, Dallas, Tex.

Courtesy—Mrs. L. S. Thompson, Chairman, Dallas, Tex.

Reading Committee—Mrs. Arthur A. Herold, Shreveport, La.; Mrs. Stanley A. Hill, Corinth, Miss.; and Mrs. Harry M. Gilkey, Kansas City, Mo.

Resolutions—Mrs. Wilbur M. Salter, Anniston, Ala., and Mrs. L. S. Thompson, Dallas, Tex.

Reports of Officers.

Report of Executive Committee.

Address: "Why An Auxiliary: Do the Times Justify Its Existence?" Mrs. Ralph B. Eusden, President, Woman's Auxiliary, American Medical Association, Long Beach, Calif.

Memorial Service—Mrs. Edward R. Hipp, Chairman of Necrology, Charlotte, N. C.

Recess.

Tuesday, November 11, 1:00 p.m.

Columbus Hotel

Doctor's Day Luncheon, Mrs. Edgar M. Dunstan, Chairman, Atlanta, Ga., and Mrs. Maynard R. Emlaw, Co-Chairman, Richmond, Va. Mrs. C. Russell Morgan, Chairman of Arrangements, Miami.

All doctors and their ladies are cordially invited to attend. Luncheon tickets may be purchased at Registration Desk, Columbus Hotel.

Introduction of Honor Guests—Mrs. C. B. Almond, Winder, Ga., originator of Doctor's Day, and Mrs. E. R. Harris, Winder, Ga., who drafted the resolution on Doctor's Day observance adopted by the Woman's Auxiliary to the Georgia State Medical Association in 1933 and by the Woman's Auxiliary to the Southern Medical Association in November 1934.

Wednesday, November 12, 9:00 a.m.

Columbus Hotel, Pan American Room

Mrs. V. Eugene Holcombe, President, presiding.

All ladies attending the Southern Medical Association meeting are cordially invited to attend.

Call to order by the President.

Invocation—Mrs. C. W. Garrison, Little Rock, Ark.

Reading of Minutes—Mrs. Harry M. Gilkey, Recording Secretary, Kansas City, Mo.

Reports of Standing and Special Committee Chairmen.

Report of State Councilors by Regions—

Mrs. Stanley A. Hill, First Vice-President, Corinth, Miss., Chairman of First Region (Alabama, Florida, Georgia, North Carolina, South Carolina and Tennessee).

Mrs. Shelby G. Carr, Second Vice-President, Richmond, Ky., Chairman of Second Region (District of Columbia, Kentucky, Maryland, Missouri, Virginia and West Virginia).

Mrs. Ridings E. Lee, Third Vice-President, Dallas, Tex., Chairman of Third Region (Arkansas, Louisiana, Mississippi, Oklahoma and Texas).

Presentation of Awards for Doctor's Day Program—Mrs. Oscar W. Robinson, Paris, Tex.

Address: "Projects of Medical Auxiliaries of the American Medical Association and Southern Medical Association are Symbolic of our American Freedom," Mrs. John F. McCuskey, Regional Chairman of Nurse Recruitment, Woman's Auxiliary, American Medical Association, Clarksburg, W. Va.

Auditing Committee—Mrs. Olin S. Cofer, Chairman, Atlanta, Ga.

Resolutions—Mrs. Wilbur M. Salter, Chairman, Business Resolutions, Anniston, Ala., and Mrs. L. S. Thompson, Chairman, Courtesy Resolutions, Dallas, Tex.

Old Business.

New Business.

Report of Nominating Committee, Mrs. H. E. Christenberry, Chairman, Knoxville, Tenn.

Election of Officers.

Installation of Officers by Mrs. Joseph W. Kelso, Past President, Woman's Auxiliary, Southern Medical Association, Oklahoma City, Okla.

Presentation of President's Pin and the Gavel to Incoming President, Mrs. Richard F. Stover, by Mrs. V. Eugene Holcombe, retiring President.

Inaugural remarks by Mrs. Richard F. Stover.

Announcements.

Adjournment.

Wednesday, November 12, 1:00 p.m.

Columbus Hotel, Roof

Twenty-Eighth Annual Luncheon of the Auxiliary to the Southern Medical Association. A cordial welcome is extended to all ladies attending Southern Medical Association meeting. Tickets may be purchased at the Registration Desk, Columbus Hotel. The luncheon is in honor of all charter members of the Woman's Auxiliary to the Southern Medical Association and of Mrs. V. Eugene Holcombe, President, Woman's Auxiliary, Southern Medical Association, and Mrs. Richard F. Stover, President-Elect, Woman's Auxiliary, Southern Medical Association. Mrs. J. E. Williams, Chairman of Arrangements, Miami.

Mrs. V. Eugene Holcombe and Mrs. Willard L. Fitzgerald, presiding.

Invocation—Mrs. W. W. Potter, Knoxville, Tenn.

Introduction of Distinguished Guests.

Address: "Thinking Together," Dr. R. J. Wilkinson, President, Southern Medical Association, Huntington, W. Va.

Address: "The Southern Auxiliary," Dr. R. L. Sanders, Chairman of Advisory Committee, Memphis, Tenn.

Recognition of Committee for Visiting Ladies and members of the Woman's Auxiliary to the Dade County Medical Association—Mrs. Willard L. Fitzgerald, General Chairman, Miami, and Mrs. Thomas S. Gowin, Co-Chairman, Miami.

Announcements.

Adjournment.

Wednesday, November 12, 7:00 p.m.

Southern Medical Association Dinner, Program and Dance. Jackie Heller's Dinner Key Terrace, Dinner Key.

Thursday, November 13, 8:00 a.m.

Biscayne Terrace Hotel, Club Room

Post-Executive Board Meeting and Breakfast, Mrs. Richard F. Stover, Miami, President, presiding.

ADVISORY COMMITTEE

The Advisory Committee to the Woman's Auxiliary is the Executive Committee of the Council of the Southern Medical Association: Dr. R. L. Sanders, Chairman, Memphis, Tenn.; Dr. Fred E. Woodson, Vice-Chairman, Tulsa, Okla.; and Dr. Olin S. Cofer, Atlanta, Ga. Ex-officio members are Dr. R. J. Wilkinson, President, Huntington, W. Va.; Dr. Walter C. Jones, President-Elect, Miami, Fla.; and Dr. Alphonse McMahon, First Vice-President, St. Louis, Mo.

COUNCILORS AND VICE-COUNCILORS, WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

(All Councilors are Members of the Executive Board)

First Region

Mrs. Stanley A. Hill, First Vice-President, Chairman.

Expire 1952—

South Carolina—Councilor, Mrs. J. L. Sanders, Greenville; Vice-Councilor, Mrs. M. G. Boggs, Abbeville.

Tennessee—Councilor, Mrs. H. E. Christenberry, Knoxville; Vice-Councilor, Mrs. Parke Nicely, Knoxville.

Expire 1953—
Alabama—Councilor, Mrs. J. R. Horn, Jr., Bessemer; Vice-Councilor, Mrs. W. M. Salter, Anniston.

Florida—Councilor, Mrs. Lee Parmley, Winter Haven; Vice-Councilor, Mrs. J. C. Davis, Quincy.

Georgia—Councilor, Mrs. Walter Gus Elliott, Cuthbert; Vice-Councilor, Mrs. Shelley C. Davis, Atlanta.

North Carolina—Councilor, Mrs. A. L. O'Briant, Raeford; Vice-Councilor, Mrs. Harry L. Johnson, Elkin.

Second Region

Mrs. Shelby G. Carr, Second Vice-President, Chairman.

Expire 1952—
Kentucky—Councilor, Mrs. James A. Ryan, Fort Mitchell; Vice-Councilor—Mrs. Shelby G. Carr, Richmond.

Missouri—Councilor, Mrs. Richard A. Sutter, St. Louis; Vice-Councilor, Mrs. Graham Asher, Kansas City.

Virginia—Councilor, Mrs. W. R. Payne, Hampton; Vice-Councilor, Mrs. Herman W. Farber, Petersburg.

West Virginia—Councilor, Mrs. U. G. McClure, Charleston; Vice-Councilor, Mrs. W. E. Bray, Jr., Huntington.

Expire 1953—
District of Columbia—Councilor, Mrs. William M. Ballinger, Washington; Vice-Councilor, Mrs. J. H. Bullock, Washington.

Maryland—Councilor, Mrs. F. A. Holden, Baltimore; Vice-Councilor, Mrs. Thomas Christensen, College Park.

Third Region

Mrs. Ridings E. Lee, Third Vice-President, Chairman.

Expire 1952—
Mississippi—Councilor, Mrs. W. W. Crawford, Hattiesburg; Vice-Councilor, Mrs. William H. Anderson, Booneville.

Oklahoma—Councilor, Mrs. Ray M. Balyeat, Oklahoma City; Vice-Councilor, Mrs. Herbert S. Orr, Jr., Tulsa.

Texas—Councilor, Mrs. Fred W. Horn, Dallas; Vice-Councilor, Mrs. O. W. Robinson, Paris.

Expire 1953—
Arkansas—Councilor, Mrs. Gordon P. Oates, Little Rock; Vice-Councilor, Mrs. J. G. Martindale, Hope.

Louisiana—Councilor, Mrs. R. M. Simonton, Monroe; Vice-Councilor, Mrs. DeWitt T. Milam, Monroe.

PAST PRESIDENTS, WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

(All are Members of the Executive Board)

1925, Mrs. E. H. Cary, Dallas, Tex.
*1926, Mrs. D. J. Williams, Gulfport, Miss.
1927, Mrs. Oscar M. Marchman, Dallas, Tex.
1928, Mrs. Arthur T. McCormack, Louisville, Ky.
1929, Mrs. C. W. Garrison, Little Rock, Ark.
1930, Mrs. James N. Brawner, Sr., Atlanta, Ga.
1931, Mrs. S. A. Collom, Sr., Texarkana, Tex.
1932, Mrs. Charles E. Oates, Little Rock, Ark.
1933, Mrs. Arthur A. Herold, Shreveport, La.
*1934, Mrs. Southgate Leigh, Norfolk, Va.
*1935, Mrs. J. Bonar White, Atlanta, Ga.
1936, Mrs. Oliver W. Hill, Sr., Knoxville, Tenn.
1937, Mrs. Frank N. Haggard, San Antonio, Tex.
1938, Mrs. Luther Bach, Florence, Ky.
1939, Mrs. W. K. West, Oklahoma City, Okla.
1940, Mrs. Charles P. Corn, Greenville, S. C.
1941, Mrs. M. Pinson Neal, Columbia, Mo.
1942, Mrs. J. Ullman Reaves, Mobile, Ala.
1943, Mrs. Richard H. Clark, Hattiesburg, Miss.
1944-45, Mrs. John Pierpont Helmick, Fairmont, W. Va.
1946, Mrs. W. W. Potter, Knoxville, Tenn.
1947, Mrs. Wiley R. Buffington, New Orleans, La.
1948, Mrs. Olin S. Cofer, Atlanta, Ga.
1949, Mrs. Joseph W. Kelso, Oklahoma City, Okla.
1950, Mrs. Robert C. Haynes, Marshall, Mo.
1951, Mrs. L. S. Thompson, Dallas, Tex.

COMMITTEES ON LADIES ENTERTAINMENT, MIAMI

General Chairman—Mrs. Willard L. Fitzgerald.
General Co-Chairman—Mrs. Thomas S. Gowin.
Registration—Mrs. Julius Alexander.
Information and Pages—Mrs. Milton M. Coplan.
Courtesy—Mrs. Leonidas W. Dowlen.
Sponsors for Distinguished Guests—Mrs. Edward F. Fox.
Decorations—Mrs. James L. Anderson.
Hospitality House—Mrs. E. W. Cullipher.
Publicity—Mrs. John W. Dix.
Telephone—Mrs. Alfred G. Levin.
Transportation—Mrs. Herbert W. Virgin, Jr.

*Deceased.

TECHNICAL EXHIBITS

Municipal Auditorium, Bayfront Park

The Technical Exhibits, always a feature of the annual meetings, will be up to the usual high standard for the Miami meeting. There will be uniform booths and the whole layout will be found very attractive. The Technical Exhibits are very definitely a scientific and educational part of the annual meetings, where much can be learned. The physicians will find the exhibitors courteous and anxious to answer any questions that may be asked, no physician being solicited to purchase any item.

Here follow the names of the firms who have reserved space for the Miami meeting:

Abbott Laboratories, North Chicago, Illinois
Aloe Company, A. S., St. Louis, Missouri
Amedic Surgical Company, Miami, Florida
American Hospital Supply Corporation, Evanston, Illinois
Ames Company, Inc., Elkhart, Indiana
Ascher and Company, Inc., B. F., Kansas City, Missouri
Ayerst, McKenna & Harrison, Ltd., New York, New York
Baker Laboratories, Inc., Cleveland, Ohio
Bard-Parker Company, Inc., Danbury, Connecticut
Baxter Laboratories, Morton Grove, Illinois
Beech-Nut Packing Company, New York, New York
Bilhuber-Knoll Corporation, Orange, New Jersey
Borden Company, The, New York, New York
Bristol Laboratories, Inc., New York, New York
Ciba Pharmaceutical Products, Inc., Summit, New Jersey
Doho Chemical Corporation, The, New York, New York
Eastman Kodak Company, Rochester, New York
Fleet Company, Inc., C. B., Lynchburg, Virginia
Fuller Pharmaceutical Company, Minneapolis, Minnesota
Grune & Stratton, Inc., New York, New York
Haskell & Company, Inc., Charles C., Richmond, Virginia
Ives-Cameron Company, Inc., New York, New York
Kremers-Urban Company, Milwaukee, Wisconsin
Lea & Febiger, Philadelphia, Pennsylvania
Lederle Laboratories, New York, New York
Lilly and Company, Eli, Indianapolis, Indiana
Lindquist Company, R. J., Los Angeles, California
Lippincott Company, J. B., Philadelphia, Pennsylvania
Majors Company, J. A., New Orleans, Louisiana
Massengill Company, The S. E., Bristol, Tennessee
Mattern Manufacturing Company, F., Chicago, Illinois
Mead Johnson and Company, Evansville, Indiana
Merck & Company, Inc., Rahway, New Jersey
Merrell Company, The William S., Cincinnati, Ohio
Mosby Company, The C. V., St. Louis, Missouri
Parke, Davis & Company, Detroit, Michigan
Pet Milk Company, St. Louis, Missouri
Pfizer & Company, Inc., Chas., Brooklyn, New York
Pitman-Moore Company, Indianapolis, Indiana
Poythress and Company, Inc., William P., Richmond, Virginia
Purdue Frederick Company, The, New York, New York
Ritter Company, Inc., Rochester, New York
Robins Company, Inc., A. H., Richmond, Virginia
Roerig and Company, J. B., Chicago, Illinois
Sanborn Company, Cambridge, Massachusetts
Sandoz Chemical Works, Inc., New York, New York
Saunders Company, W. B., Philadelphia, Pennsylvania
Schenley Laboratories, Inc., Lawrenceburg, Indiana
Schmidt Instrument Company, Chas. A., St. Louis, Missouri
Searle & Company, G. D., Chicago, Illinois
Sharp & Dohme, Inc., Philadelphia, Pennsylvania
Smith, Kline & French Laboratories, Philadelphia, Pennsylvania
Squibb & Sons, E. R., New York, New York
Stuart Company, The, Chicago, Illinois
Swift & Company, Chicago, Illinois
U. S. Vitamin Corporation, New York, New York
Upjohn Company, The, Kalamazoo, Michigan
VanPelt & Brown, Inc., Richmond, Virginia
Varick Pharmacal Company, Inc., New York, New York
Walker Laboratories, Inc., Mount Vernon, New York
Warner and Company, Inc., William R., New York, New York
Winthrop-Stearns, Inc., New York, New York

Southern Medical News

ALABAMA

Medical College of Alabama, Birmingham, has received a Public Health Service grant of $25,000 to support training in cancer diagnosis and treatment as announced by the Federal Security Agency. The program will be under the direction of Dr. William H. Riser, Jr.

Alabama Academy of General Practice held its fifth postgraduate seminar August 20 and 21 at the Medical College of Alabama, Birmingham. At the July board meeting Dr. R. E. Hale, Bellamy, was named chairman of the committee on publications. Alabama members appointed on national committees are Dr. Albert S. Dix, Mobile, on the Constitution and By-Laws Committee of the American Academy; and Dr. J. Paul Jones continues to serve as a member of the Committee on Rural Health, on which he has already served one year.

Dr. Louis L. Friedman, Birmingham, participated in a lecture tour of South America with a group of chest physicians in August. He participated in the Symposium on Pulmonary Dust Diseases under the auspices of the Trudeau Foundation at Saranac Lake, New York, the latter part of September.

ARKANSAS

University of Arkansas School of Medicine, Little Rock, has received a Public Health Service grant of $12,600 as announced by the Federal Security Agency to be used for investigation of life history of intraepithelial carcinoma of the uterine cervix. The project director is Dr. Willis E. Brown.

Dr. J. T. May, formerly of Huntsville, has accepted a residency appointment at the University Hospital, Little Rock.

The following physicians have recently located in Arkansas: Drs. Shelby Hicks, Lavaca; Duane Brothers, Ozark; Karr Shannon, Jr., Melbourne; R. T. Cook, Jr., Clarendon; Charles and Roger Edmisten, Huntsville; M. C. Edds, Mulberry; Ed Wheat, Springdale; and Robert Jones, Benton.

Dr. Robert F. Hyatt, Jr., Monticello, has been doing special work in surgical technic at Cook County Hospital, Chicago.

Dr. F. Q. Wyatt, Batesville, has been elected to fellowship in the International College of Surgeons.

Dr. W. B. Hawkins has been appointed chief of professional services at the North Little Rock Veterans Hospital.

Dr. S. N. Doane, Arkadelphia, recently received the fifty-year pin and certificates as a graduate of Jefferson Medical College.

DISTRICT OF COLUMBIA

The Washington Heart Association at its recent annual meeting elected Dr. Clayton B. Ethridge, president; Mr. Robert Ramspeck, vice-president; Mr. Raymond Ruppert, treasurer; and Dr. Hill Carter, secretary.

The Providence Hospital Doctors Alumni Association held its third annual reunion recently and elected Dr. James P. Lyons, president; Dr. Louis J. Goffredi, vice-president; Dr. Jean Paquin, secretary; Dr. Frank S. Pellegrini, treasurer, and Dr. Thomas E. Curtin, historian, all of Washington.

Dr. Frank B. Rogers (Lt. Col., MC, USA), who has served as director of the Army Medical Library, Washington, since October 1949, has been appointed director of the recently established Armed Forces Medical Library. This is the largest institution of its kind in the world, serving as a central medical library for the Army, Navy, and Air Force and as a national library for medicine and related sciences.

Dr. Karl C. Corley (Lt. Col.) and Dr. Clarence R. Hartman (Major), recently on active duty with the 382nd General Hospital near Osaka, Japan, have resumed practice in Washington.

Social Hygiene Society of the District of Columbia has re-elected Dr. William P. Herbst, Washington, president.

Physician-Veterans of World War II have elected Dr. William T. Spence, president; Dr. Ellis April, vice-president; and Dr. Alfred A. J. Den, secretary-treasurer.

Dr. Edward J. Beattie, Jr., assistant professor of surgery and director of the Surgical Research Laboratories, George Washington University School of Medicine, Washington, has been appointed to the medical staff of the Presbyterian Hospital, Chicago. He will also be clinical assistant professor of surgery, University of Illinois College of Medicine.

Dr. John B. Ross, Washington, located at Jacksonville, Florida, on September 1. He is Medical Director of the Jacksonville Blood Bank and is establishing a consulting practice in hematology.

Dr. Samuel M. Dodek, Washington, has been elected to membership in the International Medical Club of Washington and the American Society for the Study of Sterility.

Dr. Robert Hunter, Washington, is taking a two-year residency at Hartford Hospital, Hartford, Connecticut.

Georgetown University Medical Center, Washington, has received a Public Health Service cancer teaching grant of $25,000 as recently announced by the Federal Security Agency. Dr. Murray M. Copeland will be the director of the project.

National Academy of Sciences, National Research Council, Washington, has been granted $3,000 by the Public Health Service for a conference on the etiology of lung cancer under the direction of Dr. W. U. Gardner.

FLORIDA

Gulf Coast Clinical Society will hold its twelfth annual meeting in Pensacola, San Carlos Hotel, October 16 and 17. Dr. A. L. Stebbins, Pensacola, is president; and Dr. Dale E. York, Pensacola, is secretary-treasurer.

The Obstetric Seminar, sponsored by the Maternal Welfare Committee of the Florida Medical Association, and the Bureau of Maternal and Child Health of the Florida State Board of Health, was held September 8-10 at Daytona Beach.

Dr. Donald W. Smith, Miami, has been elected president of the Florida Association of Blood Banks, and Dr. John T. Stage, Jacksonville, is vice-president.

Dr. Lawrence E. Geeslin, Jacksonville, attended the first International Diabetes Federation meeting held in Leyden, The Netherlands, July 7-12.

Dr. Albert L. Ward, Port St. Joe, has been appointed a member of the Florida State Board of Health, succeeding Dr. Mark F. Boyd, Tallahassee.

Dr. Samuel G. Hibbs, Tampa, has been elected president of the Tampa Chapter, American Red Cross.

Dr. Edward W. Mencher, Miami Beach, has returned from New York where he took a summer course in cardiology and a review course in general medicine at the New York University Postgraduate Medical School.

Dr. Henry M. Stern, Lakeland, is taking a year's postgraduate work in surgery at Touro Infirmary, New Orleans, Louisiana.

Dr. Leonard G. Rowntree, Miami Beach, has donated his personal medical library of more than 600 books to the University of Miami's newly established medical school.

Dr. A. Buist Litterer, Miami, recently attended the symposium on dermatology and syphilology held at the New York University Postgraduate Medical School.

Dade County Academy of General Practitioners has elected Dr. Leonard L. Weil, president; Dr. Manning J. Rosnick, vice-president; Dr. Walter W. Sackett, Jr., secretary-treasurer; and Dr. T. D. Sandberg, a trustee for a three-year term.

The Miami Heart Institute, Miami Beach, has reopened after suspending operations on July 5 for extensive renovations.

The newly organized Greater Miami Society of Psychiatry and Neurology has named Dr. James L. Anderson, temporary chairman; Dr. Paul S. Jarrett, secretary; and has appointed Drs. Herman Selinsky and Edward H. Williams a committee to draw up the constitution and by-laws for the society.

Heart Association of Greater Miami at its recent annual meeting installed Dr. Edwin P. Preston, president; and elected Dr. Milton S. Saslaw, president-elect; Dr. Morton M. Halpern, vice-president; and Dr. Jack L. Wright, secretary.

The Southeastern Regional meeting of the American College of Physicians will be held in Havana, Cuba, November

7-9, preceding the annual meeting of the Southern Medical Association in Miami, November 10-13.

Southwest Florida Tuberculosis Hospital, Tampa, recently dedicated, cost $4,500,000 and has 508 beds.

GEORGIA

Medical College of Georgia, Augusta, has received from the Public Health Service a grant of $8,800 for the study of pre-invasive cancer of the uterine cervix in women at the Milledgeville State Hospital, Dr. H. E. Nieburgs, director; and a $17,111 grant for the continuation of a project using the cytologic diagnostic method in studies of cancer of the uterine cervix in the female population of Floyd County, Drs. H. E. Nieburgs and E. R. Pund, directors.

Hospitals in Georgia completed or under construction are: Habersham County Hospital, situated between Demorest and Clarkesville, which cost $567,000 was opened July 1. Stephens County Hospital was dedicated July 13. Construction has begun on the Pierce County Hospital at Blackshear. Gordon County is constructing a hospital in Calhoun. Contract has been awarded for a 75-bed hospital at Valdosta. The Marietta Hospital Authority has made application for a federal loan to construct a 50-bed addition to the Kennestone Hospital at Marietta.

Dr. T. C. Boswell, Atlanta, has opened the Tate Clinic for the general practice of medicine.

Dr. M. B. Copeloff, Atlanta, has been appointed State Consultant Physician of the State Department of Public Welfare.

Dr. O. L. Rogers, Sandersville, has been named Washington County's Most Outstanding Citizen of 1952.

A plaque honoring the memory of the late Dr. Craig Barrow was dedicated July 1 in the Central Hospital of Georgia, Savannah. Dr. Craig's foresight was responsible for the erection of this hospital.

Dr. Harold L. Murray, Atlanta, will have charge of the first clinic in Georgia devoted exclusively to the treatment of arthritis and rheumatism at Grady Hospital. Dr. Murray was awarded a $3,000 Arthritis Fellowship given by the Atlanta chapter, Arthritis and Rheumatism Foundation.

Dr. Thomas Edwin McBryde, Rockmart, has been presented an award by the Medical Association of Georgia in recognition of his fifty years as a medical practitioner in the State of Georgia.

Dr. Sam Anderson, Atlanta, is associated with Dr. John D. Campbell, Doctors Building, Atlanta, in the practice of psychiatry.

Dr. Charles F. Cooper, Jr., Atlanta, is associated with Dr. Anton V. Hallum, Doctors Building, Atlanta, in the practice of ophthalmology.

Dr. Thomas J. Howard, a native of Augusta, opened his office in Augusta in July for general practice.

The following physicians announce the opening of their joint offices to be known as the Buckhead Clinic, Atlanta: Dr. Ralph A. Huie, Jr., medicine and cardiology; Dr. John McClure, Jr., surgery; Dr. Charles M. Silverstein, roentgenology and internal medicine; and Dr. G. R. Sutterfield, obstetrics and gynecology.

Dr. Raymond L. Jordan, formerly of Augusta, will be associated with Dr. Harold W. Long, Eastman Hospital, Eastman. Dr. Jordan will do general practice as well as his specialty in obstetrics.

Dr. James W. Purcell is associated with Dr. Henry E. Steadman, Hapeville.

Dr. Bill Purcell and Dr. Charles Richards have opened new offices for the practice of medicine in Calhoun.

Dr. Albert A. Rayle and Dr. Albert A. Rayle, Jr., Atlanta, are associated in the practice of radiology in the Doctors Building, Atlanta.

Dr. J. Jack Stokes, Atlanta, has opened offices in the Medical Arts Building, Atlanta, practice limited to ophthalmology.

Dr. Margaret J. Wall, Atlanta, is associated with Dr. W. Elizabeth Gambrell, Atlanta, in the practice of internal medicine.

Habersham County General Hospital has named Dr. B. L. Roberts, Cornelia, president of the staff group; Dr. J. L. Walker, Clarksville, vice-president; and Dr. G. T. Nicholson, Cornelia, secretary-treasurer.

Dr. James F. O'Daniel has been appointed chief surgery resident at Macon Hospital, Macon.

Emanuel County Hospital, Swainsboro, built at a cost of $591,790, was dedicated recently and will serve Emanuel County and surrounding trade areas.

Dr. John Venable has been appointed director of the new Division of Training, Georgia Department of Public Health.

Dr. Rufus F. Payne has been named head of the new 14 million dollar state general hospital in Augusta and assumed duties in September.

Dr. John T. Arnold, Parrott, was honored recently by the Dougherty County Medical Society and the Third District Medical Society for his fifty-two years of practice in South Georgia.

Dr. Jerrald Singleton, formerly of Wilson, North Carolina, has taken over the clinic and practice of Dr. Robert A. Burns, Blue Ridge. Dr. Burns was called to service with the Air Force recently.

Dr. Richard P. Campbell, formerly of Rockmart and Fayetteville, has opened an office in Cedartown.

Dr. Henry Grady Carter, Jr., of Atlanta and Decatur, has opened an office in Decatur for the general practice of medicine.

Dr. Walter C. Earle, Atlanta, chief of the professional division of the Atlanta area medical office of the Veterans Administration, has been awarded a citation of merit by the University of Chicago. He directed public health and sanitation efforts in Central and South America.

Dr. Virgil P. Sydenstricker, professor of medicine, Medical College of Georgia, Augusta, was honored recently at a testimonial dinner by his colleagues in celebration of his thirty years of service as professor of medicine at the Medical College. The Certificate of Merit was presented "for outstanding work in the field of medicine." He was presented a gold watch from his colleagues. He is the only full-time professor of medicine in the United States who has held the chair of medicine thirty years.

Dr. Daniel C. Elkin, chairman of the department of surgery, Emory University School of Medicine, Atlanta, received at the commencement exercises at Northwestern University, Chicago, an honorary doctor of science degree.

Grants awarded Emory University professors to finance research in health sciences as announced by the Public Health Service are: Dr. J. D. Martin, Jr., professor of clinical surgery, $8,100 for research in the use of ACTH in burns; Dr. Phillip K. Bondy, associate in medicine, $7,333 for research in the effect of growth hormone on carbohydrate metabolism; and Dr. J. Spalding Schroder, associate in medicine, $4,698 for a study of excretion of gallbladder contrast media.

KENTUCKY

University of Louisville School of Medicine physicians recently awarded research grants as announced by the Public Health Service are Dr. J. Murray Kinsman, $10,800, by the National Institute for research on the influence of irregular heart beat on circulation and heart output; and Dr. James B. Rogers, $6,000 from the National Cancer Institute for research on the rate of induced tumor growth in susceptible and nonsusceptible experimental animals.

Dr. Charles H. Duncan, New York City, became associated with the University of Louisville School of Medicine in the Department of Internal Medicine August 1.

Dr. T. Ashby Woodson, Louisville, has been reelected to the Board of Governors of the American College of Chest Physicians from Kentucky for a three-year term. He has held this position since 1946.

Dr. Oscar Haynes, formerly of Berea, is associated with Drs. W. O. Johnson and J. B. Marshall in the Brown Building, Louisville, for the practice of gynecology and obstetrics.

Dr. William E. Pugh is associated with Drs. Rudy F. Vogt and Bruce B. Mitchell in the Heyburn Building, Louisville, for the practice of obstetrics and gynecology.

Dr. Richard T. Hudson, Louisville, announces the association of Dr. Charles R. Hoffman in the practice of orthopedic surgery.

Dr. Henry S. Collier is associated with Dr. R. Arnold Gris

Continued on page 36

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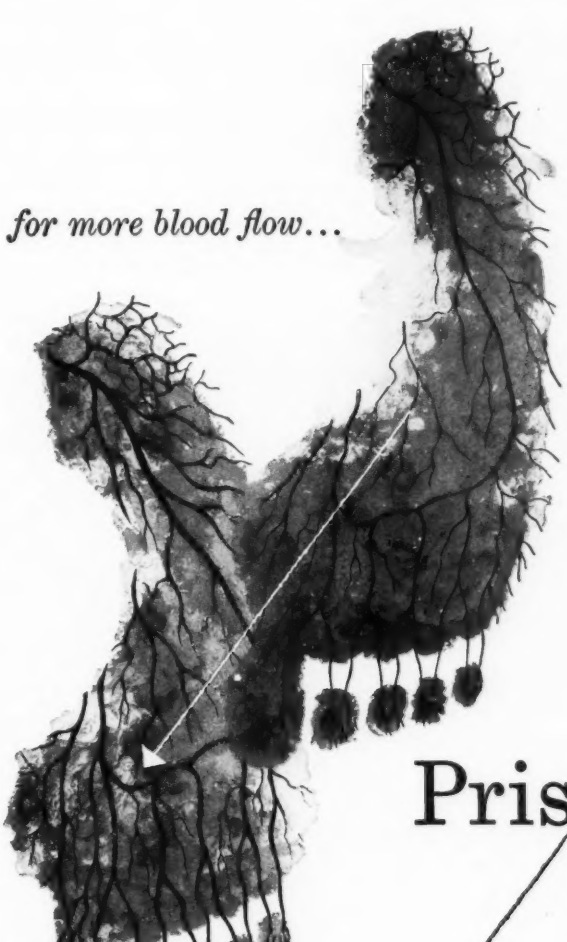

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Continued from page 1014

wold in the Heyburn Building, Louisville, for the practice of surgery.

LOUISIANA

Louisiana Chapter of the American College of Surgeons will meet for a one-day clinical program in New Orleans, October 24.

National Association of Coroners met in New Orleans, August 26-29, under the presidency of Dr. N. J. Chetta.

Dr. Nelson K. Ordway, professor and head, department of pediatrics, Louisiana State University School of Medicine, New Orleans, recently went to Europe on a World Health Organization Fellowship, visiting cardiology clinics in France, Switzerland and Sweden.

Dr. Russell L. Holman, professor and head, department of pathology, Louisiana State University School of Medicine, New Orleans, has been appointed representative of the American Society for Experimental Pathology on the National Research Council.

New Orleans Chapter of the American Academy of General Practice has elected Dr. Carlo Cabibi, president; Dr. Esmond Fatter, vice-president; Dr. Eugene Claverie, secretary; and Dr. Cosmo J. Tardo, treasurer.

Matairie Hospital, New Orleans, has elected to its staff Dr. Paul Cashio, president; Dr. Albert W. Habeeb, vice-president; and Dr. M. B. Casteix, secretary-treasurer.

MARYLAND

University of Maryland School of Medicine, Baltimore, has been awarded a Public Health Service grant of $25,000 to support training in cancer diagnosis and treatment as announced by the Federal Security Agency. The program will be under the direction of Dr. Edwin H. Stewart, Jr.

MISSISSIPPI

Dr. William A. Neely, Banks, has joined the staff of the Division of Surgery of the University of Tennessee College of Medicine, Memphis, as research associate. Dr. Neely recently completed his internship at Barnes Hospital, St. Louis, Missouri.

Dr. F. Michael Smith, Vicksburg, recently was presented a Fifty-Year Club certificate and lapel pin at a meeting of the local county medical society.

Dr. William V. Hare will direct the work to be done under a $5,000 grant recently awarded the University of Mississippi by the Public Health Service to support training in cancer diagnosis and treatment.

MISSOURI

Dr. James R. Amos, Springfield, has been named director of the Missouri State Division of Health to fill the vacancy caused by the death of the late Dr. Buford G. Hamilton. Dr. Amos has been director of the Greene County Health Department since 1941.

The Missouri Academy of General Practice has scheduled a series of postgraduate evening meetings in Cape Girardeau, Kennett, Louisiana, Columbia, Rolla, Nevada, Springfield, Warrensburg and Chillicothe, on October 30, November 20, December 4, and January 22, 1953.

Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Trudeau Society will hold their 39th annual conference in St. Louis, Jefferson Hotel, October 16-18.

American Urological Association will hold its postgraduate course in urology, known as the South Central Section Seminar, in Kansas City, January 11-14, 1953, instead of December 14-18 as originally scheduled.

Public Health Service grants recently announced by the Federal Security Agency: Washington University School of Medicine, St. Louis, $12,810, for study of the nutritional rehabilitation of patients with advanced cancer, under the direction of Dr. Robert Elman, and $9,148, for the development of better methods of cancer teaching in nursing schools, under the direction of Louise Knapp; and St. Louis University School of Medicine, $11,793, for the evaluation of technics using radioisotopes for the localization of brain tumors, under the direction of Dr. Robert E. Mack.

The second reunion of the 70th General Hospital overseas unit (the St. Louis Universitv unit) was held in St. Louis, August 30-September 1, with Dr. James F. Dowd, instructor in surgery, St. Louis University School of Medicine, as general

Continued on page 42

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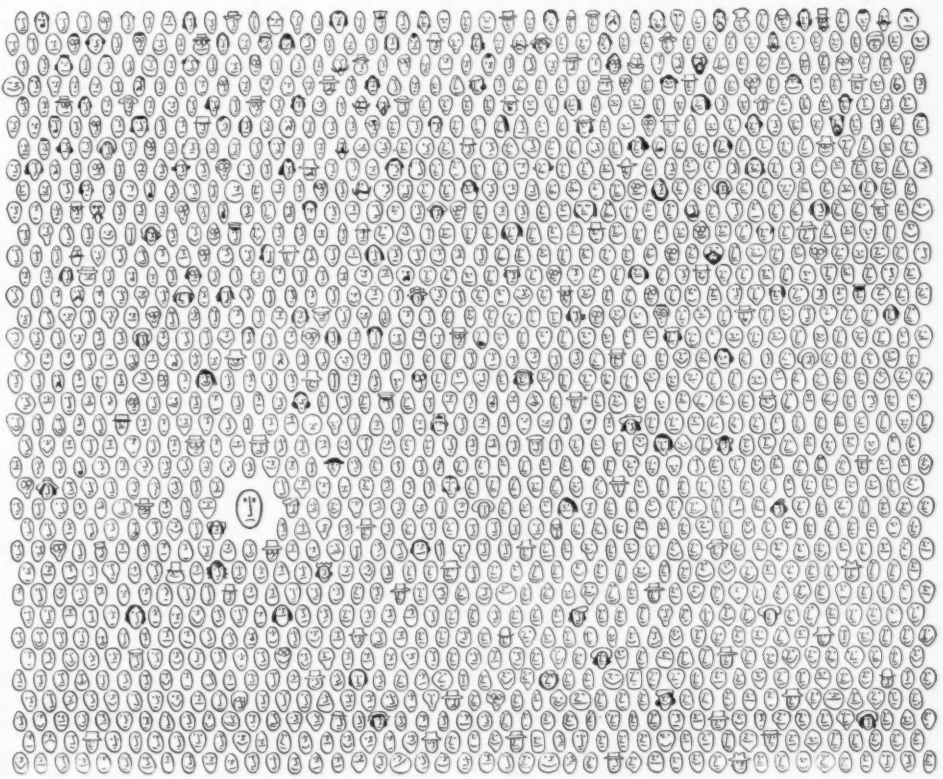

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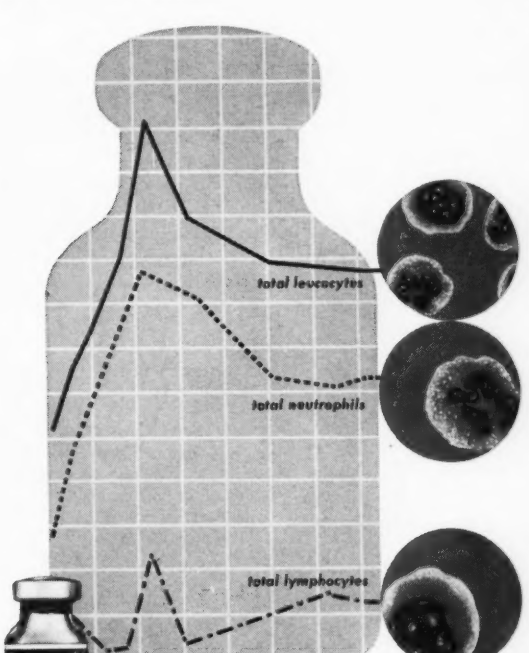

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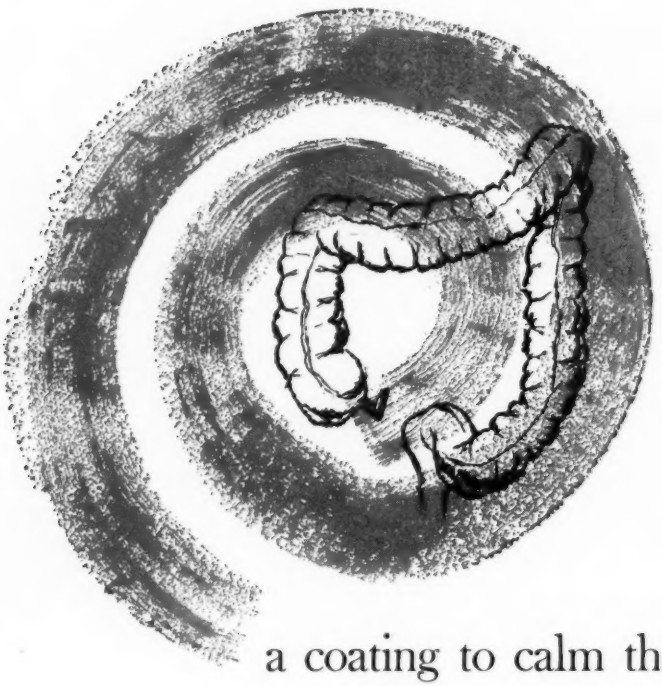

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Continued from page 36

chairman. The first reunion of the group since the end of World War II was held two years ago on the Labor Day weekend.

St. Louis University School of Medicine, St. Louis, has been awarded a Public Health Service grant of $25,000 to support training in cancer diagnosis and treatment, and will be under the direction of Dr. E. Lawrence Keyes, assistant professor of clinical surgery.

NORTH CAROLINA

Dr. Leonard J. Ravitz, instructor in neuropsychiatry, Duke University School of Medicine, Durham, has been making a study of electrical measurements and treatment in mental illness, pioneer medical research work. The entire issue of "Archivos De Medicina Internacional," published by the Washington Institute of Medicine, for doctors in all the countries of South America, Mexico and Spain, is devoted to the work of Dr. Ravitz.

University of North Carolina School of Medicine, Chapel Hill, was recently awarded a Public Health Service grant of $25,000 for cancer teaching under the direction of Dr. K. M. Brinkhous.

Dr. T. D. Ghent has opened offices in Charlotte for the practice of ophthalmology.

OKLAHOMA

Oklahoma State Radiological Society has elected for two-year terms Dr. Walter E. Brown, Tulsa, president; Dr. Edward D. Greenberger, McAlester, vice-president; and Dr. John R. Danstrom, Oklahoma City, secretary-treasurer.

Dr. Charles Green, Lawton, has opened a new clinic building.

Dr. Lonnie C. Redus, who recently completed a residency at University Hospital, Oklahoma City, has joined the Weatherford Hospital staff.

Dr. Rossler H. Henton, who recently completed his internship at Hillcrest Hospital, Tulsa, has returned to his home town of Rush Springs to establish his practice.

Dr. Charles N. Talley, Marlow, has been doing postgraduate work at Cook County Graduate School of Medicine in Chicago.

SOUTH CAROLINA

Dr. W. P. Beckman, Columbia, superintendent of the South Carolina State Hospital, was recently named state director of Mental Health. Dr. William S. Hall, Columbia, succeeds Dr. Beckman as superintendent of the State Hospital.

TENNESSEE

Cancer research grants totaling more than $82,000 have been made to the University of Tennessee College of Medicine, Memphis, and the Memphis and Shelby County Health Department by the National Cancer Institute, an agency of the National Institute of Health and Public Service: Dr. Douglas H. Sprunt, chief of the division of pathology, $13,103; Dr. Cyrus C. Erickson, professor of pathology and bacteriology, $10,011; Dr. Frank E. Whitacre, chief of the division of obstetrics and gynecology, $36,951, this money to be used in Memphis to help develop a cancer diagnosis test and to make various studies of women with early or suspected cancer; and Dr. L. M. Graves, director of Memphis and Shelby County Health Department and associate professor of preventive medicine, $19,566 for a "follow-up study of patients with early or suspected uterine cancer found by general cytology screening of female population."

New appointments in the Division of Pathology and Bacteriology, University of Tennessee Medical Units, Memphis: Dr. Yo Soup Song, who received his doctor of medicine degree in 1950 from the National University Medical College in Seoul, Korea; Dr. Pierre-Antoine Finck, formerly instructor in pathology at the University of Geneva, Switzerland; Dr. Bengt Larsson, Malmo, Sweden; Dr. Luis Prieto, Jr. and his wife Dr. Helen Prieto, Cleveland, Ohio; Dr. W. S. Gilmer, Charlottesville, Virginia; and Dr. Tom D. Norman, formerly at U. S. Air Force Hospital, Sheppard Air Force Base, Wichita Falls, Texas, all to be instructors in pathology except Dr. Luis Prieto, Jr. who will be an assistant professor.

Dr. James D. Hardy, assistant professor of surgery at the University of Tennessee College of Medicine, Memphis, has been awarded by the U. S. Public Health Service a research grant of $8,991 for investigating the body's reaction to operations which are done in a series, such as chest surgery, skin grafting for burns and some bone surgery. The work is to be done in the laboratories of the division of surgery at the

Continued on page 46

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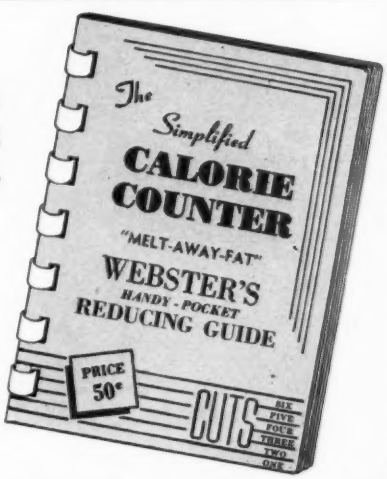

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Continued from page 42

University of Tennessee College of Medicine and at the West Tennessee Tuberculosis Hospital. Drs. Francis H. Cole, Frank C. Wilson, Jr. and William A. Neely will be associated with the study.

The LeBonheur Children's Hospital, Memphis, formally opened recently, now has a fully organized medical staff: Drs. F. Thomas Mitchell, chief of staff; James G. Hughes, vice-president; C. Barton Etter, secretary; J. Spencer Speed, chief of surgery; J. A. Danciger, chief of surgery; J. A. Danciger, chief of medicine; and Mr. Freeman E. May, administrator of the hospital.

Baptist Memorial Hospital, Memphis, the South's largest private hospital, will soon begin construction of a new five and a half million dollar addition which will increase the bed capacity from 515 to 750. The hospital recently celebrated its fortieth anniversary.

Mid-South physicians were recently sent questionnaires to be given an opportunity to select the postgraduate courses to be offered by the Postgraduate Department, University of Tennessee Medical Units. All Tennessee physicians within a 150 mile radius of Memphis in Arkansas, Alabama, Missouri, Kentucky and Mississippi, are being surveyed by a Coordinating Committee working with the Postgraduate Department composed of Dr. W. T. Satterfield, Memphis, representing the Tennessee Academy of General Practice and the local chapter; Dr. Nicholas Gotten, member of the Memphis and Shelby County Medical Society; and Dr. J. Paul Baird, Dyersburg, representing the Tennessee State Medical Association.

Dr. Dan C. Gary has opened offices in Memphis for the practice of diagnostic and therapeutic radiology.

Jackson Clinic, Jackson, has added to the staff Dr. Ray A. Douglas, Jr., Huntingdon, and Dr. Edwin W. Edwards, a native of Gulfport, Mississippi.

Dr. Clarence M. Easley, Morristown, is associated with Dr. S. D. Sullenberger at the Sullenberger Clinic, Dandridge.

Dr. Swan Burrus, Jr., after completing a three-year residency in Philadelphia Lying-In Hospital, in obstetrics and gynecology, is associated with his father, Dr. Swan Burrus, Sr., Jackson.

Dr. Claude V. Murr, Jr., is associated with Dr. John B. Haskins with offices in the Medical Arts Building, Chattanooga.

Dr. Stewart Smith is associated with Dr. John W. Hocker, Hocker Clinic for Children, Chattanooga.

Dr. A. G. Randall, Nashville, has been appointed assistant county health director for Davidson County.

TEXAS

Dr. Curtice Rosser, Dallas, was elected Chairman of the Board of Trustees of the International College of Surgeons at the annual meeting in Chicago in September.

Postgraduate Medical Assembly of South Texas at its eighteenth assembly held recently installed Dr. R. M. Johnson, Houston, president; and elected Dr. H. E. Dustin, Houston, president-elect; Dr. Carlos Fuste, Alvin, Dr. W. P. Killingsworth, Port Arthur, and Dr. R. W. Pipkin, Baytown, vice-presidents; Dr. C. A. Dwyer, Houston, secretary; and Dr. Charles D. Reece, Houston, treasurer.

International Medical Assembly of Southwest Texas will meet in San Antonio, January 27-29, 1953.

Southwestern Surgical Congress will meet in Dallas, Baker Hotel, October 20-22. A fee of $10 will be charged physicians who are not members of the Southwestern or Southeastern Surgical Congress, residents or interns.

Dr. Charles L. Martin, Dallas, was installed president of the American Roentgen Ray Society, held in Houston in September. This is the second oldest radiological society in the world.

University of Texas Medical Branch, Department of Pediatrics, has been awarded a renewal of a $5,000 research grant as announced recently by Sharp and Dohme, Inc., sponsors of the grant which will be used by Dr. Harriet Felton for clinical and laboratory evaluation of soluble pertussis vaccine. Research studies will be directed by Dr. Arild E. Hansen, chairman of the department.

A course in tumor surgery will be held at Fort Sam Houston, Brooke Army Hospital, October 13-17. This is one of seventeen short postgraduate courses open to both military and civilian physicians sponsored by the Army Medical Service.

The Gulf Coast Medical Foundation, a nonprofit medical foundation, established to acquire and operate a "benevolent, charitable, scientific, and educational foundation for the treating of the sick and for the purpose of training and educating young women in the nursing profession, for developing and training young physicians and surgeons, and for conducting postgraduate work, study and research in the various fields of

Continued on page 50

In Spastic Colitis

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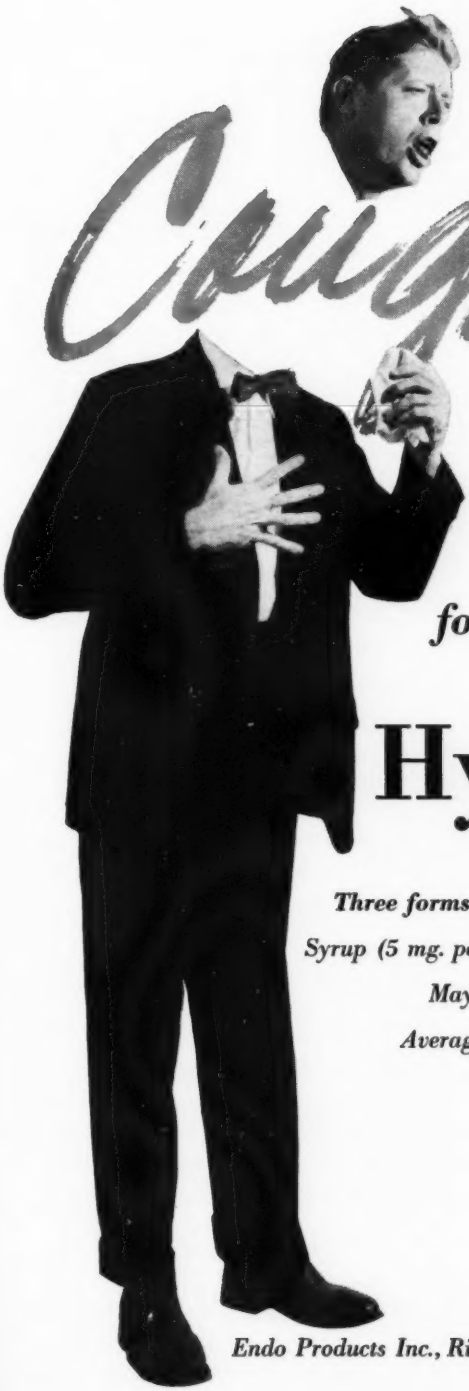

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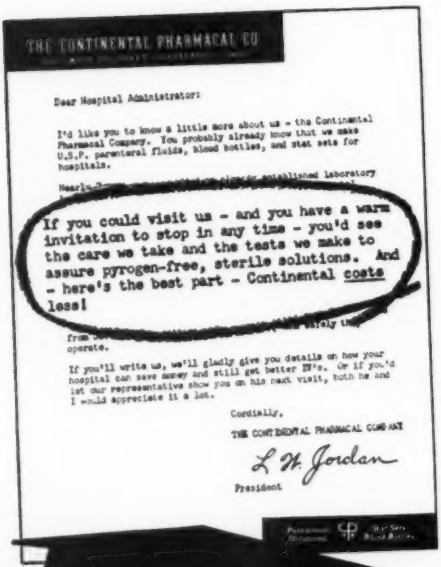

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Phenobarbital	½ gr.	0.11 Gm.
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Sodium Citrate	8 grs.	1.75 Gm.
Ammonium Chloride	1 gr.	0.22 Gm.
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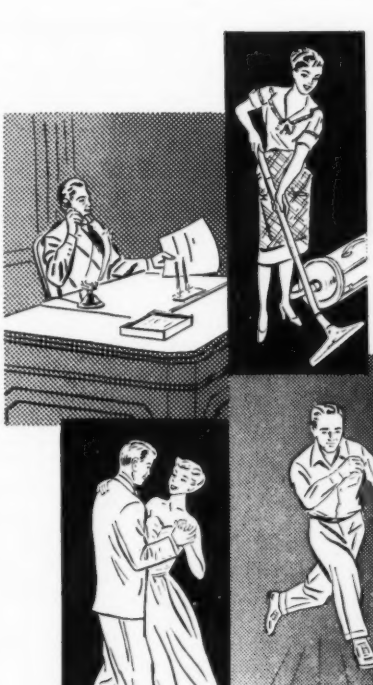
hemorrhoidal

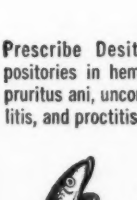
SUPPOSITORIES



the hemorrhoidal patient may sit, move and walk in greater comfort as Desitin Hemorrhoidal Suppositories with Cod Liver Oil act promptly to...

- **relieve pain and itching**
- **minimize bleeding**
- **reduce congestion**
- **guard against trauma**
- **promote healing** by virtue of their contents of high grade crude Norwegian cod liver oil, rich in vitamins A and D and unsaturated fatty acids (in proper ratio for maximum efficacy).

Prescribe Desitin Hemorrhoidal Suppositories in hemorrhoids (non-surgical), pruritus ani, uncomplicated cryptitis, papillitis, and proctitis.



Composition: crude Norwegian cod liver oil, lanolin, zinc oxide, bismuth subgallate, balsam peru, cocoa butter base. No narcotic or anesthetic drugs to mask rectal disease. Boxes of 12 foil-wrapped suppositories.

Send for **samples**

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Thiamin	**4.2 mg.**
Riboflavin	**1.4 mg.**
Niacin	**11.3 mg.**
Pantothenic Acid	**3.4 mg.**
Choline	**119.0 mg.**
Inositol	**113.4 mg.**
Pyridoxine	**800 mcg.**
Folic Acid	**110 mcg.**
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Para-Amino-Benzoic Acid	**280 mcg.**

Plus independent vitamin B growth, lactation, pellagra-preventive, and other vitamin B factors natural to genuine Brewers' Yeast.

VITAMIN FOOD CO., Inc.

NEWARK 4, NEW JERSEY

Continued from page 46

medicine," has been created in Wharton. Approximately $200,000 has been pledged for construction of a medical center.

Cancer research grants have been made recently by the National Cancer Institute to: University of Texas Medical Branch, Galveston, $24,957; and Southwestern Medical School of the University of Texas, Dallas, $25,000. These teaching grants will be under the direction of Dr. Paul Brindley and Dr. Andrew B. Small at each school respectively.

Nix Tumor Clinic, San Antonio, has been awarded Public Health Service grants: $5,326 for pathological studies of breast tumors in laboratory animals, and $8,423 for the study of papillomas and other possible precancerous conditions of the human breasts, both projects being under the direction of Dr. Dudley Jackson, Sr.

A new bi-monthly magazine for *GP*, known as the *Heart Bulletin*, is being published by the Medical Arts Publishing Foundation, a non-profit organization associated with the University of Texas, Houston.

The new Medical Library building to be constructed in the Texas Medical Center, Houston, is anticipated to be completed by the end of 1953. It will cost about $850,000 and the furnishings and equipment approximately $350,000. It will house the central library collection of several Medical Center institutions, the offices of the Texas Medical Center, Inc., the Academy of Medicine, the Harris County Medical Society and other medical organizations. A gift of $300,000 was made toward the building fund by the M. D. Anderson Foundation and the remainder of the cost is being made up by funds accumulated through the years by the Academy and by gifts from physicians and friends.

Dr. G. V. Brindley, Jr., Temple, has been named secretary of the Southern Society of Clinical Surgeons.

Dr. S. W. Lester, Port Lavaca, has been cited by the Chamber of Commerce for public service as the "Outstanding Citizen of Calhoun County in 1952."

Dr. Louis P. Kirkpatrick, formerly of Reagan and Houston and now a captain with the First Marine Division, has been named one of the vice-presidents of the "38th Parallel Medical Society of Korea."

Dr. and Mrs. I. D. Ellis, Troy, recently observed their golden wedding anniversary.

VIRGINIA

Recent faculty promotions at the University of Virginia Department of Medicine: Dr. Frank J. Curran, from associate professor to professor; Dr. Richard W. Garnett, Jr., from assistant to associate professor; Dr. Gordon C. G. Thomas, from instructor to assistant professor; and Dr. Arthur J. Bachrach to instructor and director of clinical psychology, all in the department of neurology and psychiatry; Dr. Fielding Jason Crigler, from clinical instructor to assistant professor in ophthalmology; Dr. Catherine M. Russell, from instructor to assistant professor in microbiology; and Dr. Norman F. Wyatt, to instructor in internal medicine.

Dr. Vernon W. Lippard, dean of the department of medicine, University of Virginia, Charlottesville, will become dean of the Medical School at Yale University, New Haven, Connecticut, on January 1, 1953.

The $70,000 Memorial Bridge, built over a railroad in Vinton, was recently dedicated honoring the late Dr. Robert Hunter Garthright who practiced medicine in Vinton for fifty-five years.

Continued on page 52

Classified Advertisements

WANTED—Physician for Alabama State Mental Institution. Salary $6,600.00 to $7,800.00. Must be licensed. Contact Steward, The Alabama State Hospitals, Tuscaloosa, Alabama.

EENT RESIDENTS WANTED—EENT Hospital, averages 50,000 out-patient visits annually, adequate supervision, instructions, surgery under board men. Apply at once: EENT Hospital, 145 Elk Place, New Orleans 12, Louisiana.

RESIDENT WANTED—Request for appointments to available vacancies in approved residency programs in Internal Medicine, General Surgery, and Pathology for the year beginning July 1, 1953, at the VAH, Coral Gables, Florida, should be addressed to Dr. L. G. Rowntree, Chairman, Deans Committee, duPont Building, Miami, Florida.

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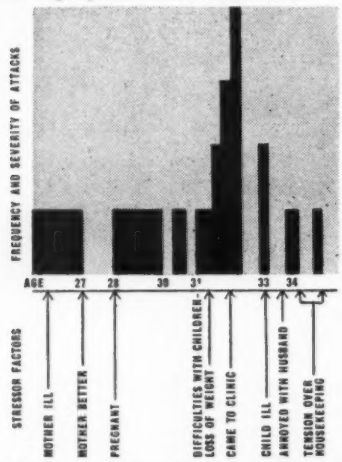
Stress . . .

Stressor factors which evoke autonomic responses occur often in our civilization. They are not always of external origin, frequently, stress springs from the "well of uncertainties, the fears, the angers, and the hostilities that an inadequate childhood nurtures in troubled people in a troubled world." [1]



After· Relationship Between Life Stress And Symptoms — Stevenson, I G.P 4· 67 (Dec.) 1951

When emotions aroused by these stresses are not dissipated in appropriate biological behavior, heightened autonomic impulses beat against a "moored" physique. [1]

Incessant "emotional buffeting" impinged on labile autonomic pathways is likely to produce deviations from normal body function and *a rash of symptoms.* In such cases, both branches of the autonomic nervous system are involved. For symptomatic relief oral administration of cholinergic and adrenergic blocking agents and central sedation has proven successful. Drugs effective for the several actions respectively are: Bellafoline, ergotamine tartrate and phenobarbital.

In the majority of cases inhibition of the several branches of the autonomic nervous system is necessary to restore it to more stable function and thereby "dampen" the overactivity of the disturbed organ systems. Therefore a preparation of the above several drugs has been made available as ***Bellergal;*** each tablet of Bellergal contains:

Bellafoline	0.1 mg.
Ergotamine tartrate	0.3 mg.
phenobarbital	20.0 mg.

Detailed literature on the subject will gladly be sent on request.

[1] *Cleghorn, R. A. and Graham, B. F.: Recent Progress in Hormone Research, Vol. IV, New York, Academic Press, Inc., 1949, p. 323.*

Sandoz Pharmaceuticals
DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, N. Y.

Continued from page 50

Drs. Wyndham B. and H. Wallace Blanton, Richmond, announce the association in the practice of medicine of Dr. Wyndham B. Blanton, Jr. and Dr. Frank McFaden Blanton.

Dr. H. Page Mauck, Richmond, visited England during the summer where he attended the joint meeting of the British and American Orthopedic Association.

WEST VIRGINIA

West Virginia Heart Association will hold the annual meeting of its Scientific Assembly in Morgantown, October 31.

Dr. Joseph M. Straughan, after completing the first year of a three-year residency in radiology at the Roosevelt Hospital, New York City, has resumed general practice in his home city of Amherstdale. Dr. W. A. Bevacqua, who is associated in practice with Dr. Straughan, has begun his second year's residency in radiology at the same hospital in New York City, the two physicians alternating year by year in postgraduate work.

Dr. B. M. Drake, Charleston, has resigned as deputy state director of health to accept appointment as head of the division of preventive medical services of the Kentucky State Department of Health, with headquarters in Louisville.

Dr. Helen Belknap Fraser, Charleston, has been named director of the division of maternal and child health with offices in the new State Office Building, Charleston. She succeeds Dr. Henrietta Marquis, Charleston, who has been serving as acting head of the division for the past several years and who will now serve as pediatric consultant.

Dr. Henry G. Storrs, who has completed a surgical residency at the Myers Clinic, Philippi, has accepted appointment as surgeon of the Doctor's Clinic, Fairbanks, Alaska.

Dr. John H. Burke, Princeton, is now located in general practice at Leaksville, North Carolina.

Dr. Emil Capito, formerly of Logan, has located at Weirton for general practice.

Dr. Merle S. Scherr has located in the North Building, Charleston, after completing a residency in allergy at the Brooklyn Jewish Hospital.

Dr. Blanton E. Russell, formerly chief medical officer of the Veterans Administration Center, Martinsburg, succeeds Dr. George F. Swanson as manager of the VA Hospital at Beckley.

CITY VIEW
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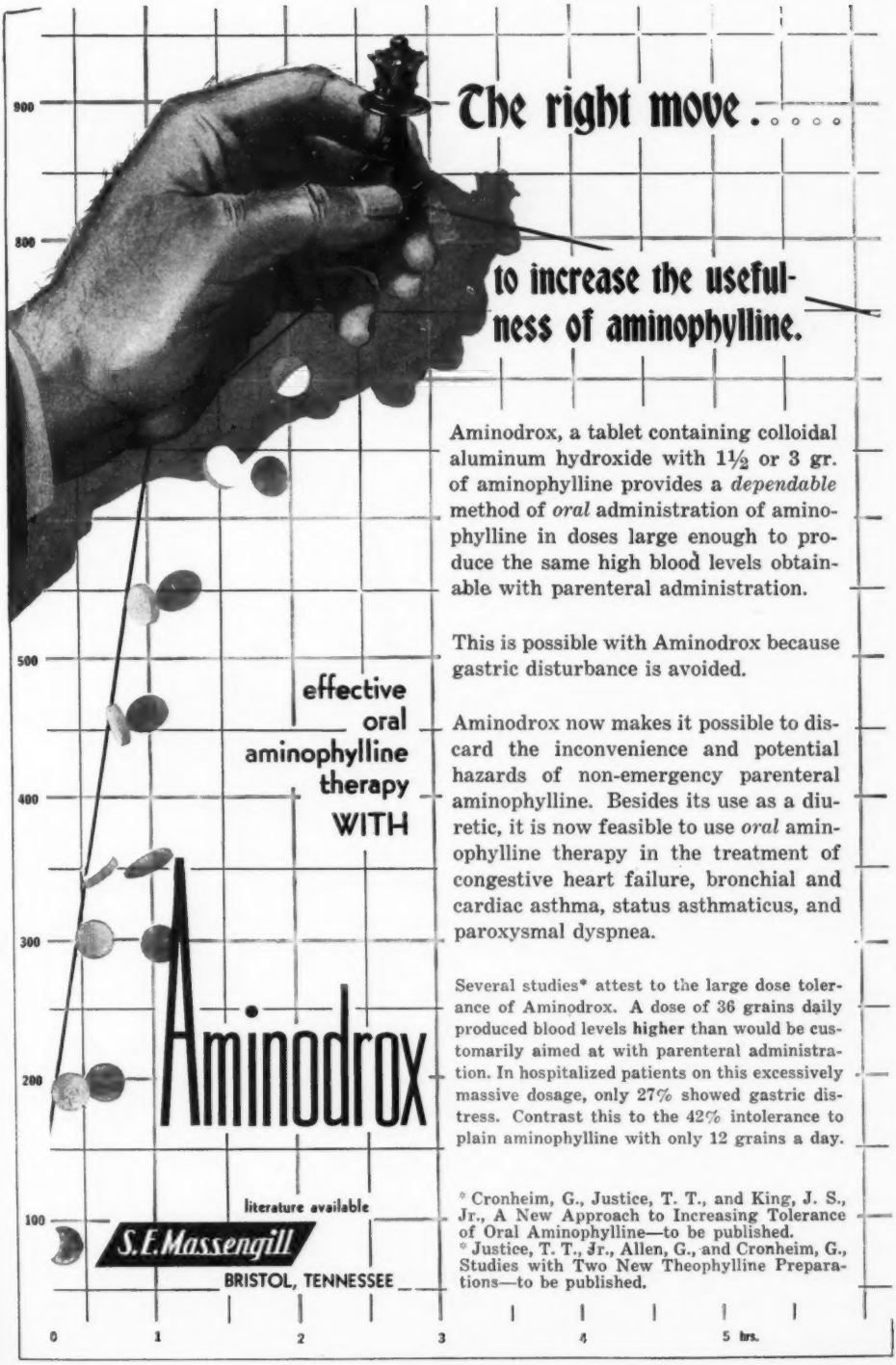

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* Cronheim, G., Justice, T. T., and King, J. S., Jr., A New Approach to Increasing Tolerance of Oral Aminophylline—to be published.
* Justice, T. T., Jr., Allen, G., and Cronheim, G., Studies with Two New Theophylline Preparations—to be published.

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Available, also: elixir 'Eskaphen B with Belladonna', for use in patients with smooth-muscle spasm. Each 5 cc. teaspoonful contains: total natural belladonna alkaloids, 0.2 mg.; phenobarbital, ¼ gr.; thiamine hydrochloride, 5 mg.

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Clinical studies have shown that Arobon does not interfere with the absorption of orally administered broad spectrum antibiotics. Hence it can be given to advantage in the specific dysenteries in conjunction with antibiotic therapy for its valuable action upon intestinal motility.

The average single dose for adults is 2 tablespoonfuls in 4 oz. of milk, and for children, 1 tablespoonful in 4 oz. of milk, for infants, 2 teaspoonfuls in 4 oz. of water or skim milk and boiled for ½ minute.

Arobon is available in 5 oz. bottles at all pharmacies.

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* Applied on acutely inflamed surfaces, weeping eczema, the inflammatory process will be mitigated.

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(1) Hanson, I. R. and Hingson, R. A., *Current Researches in Anesthesia and Analgesia*, 29:136 (May-June) 1950

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References: 1. New and non-official remedies, 1948, p. 426; Beams, A. J.: J. A. M. A. 130:190 (Jan. 26) 1946; Morrison, L. M.: J. A. M. A. 134:673 (June 21) 1947; Steigmann, F.: J. A. M. A. 137:239 (May 15) 1948.
2. Morrison, L. M.: Am. Hearst J. 36:473 (Sept.) 1948.
3. Jukes, T. H.: Annual Review of Biochemistry, 1947.
4. Biskind, M. S. and Schrier H.: Report, N.Y. Acad. Med., (June) 1945.
5. Biskind, M. S.: J. Clin. Endocr. 3:227, 1943.

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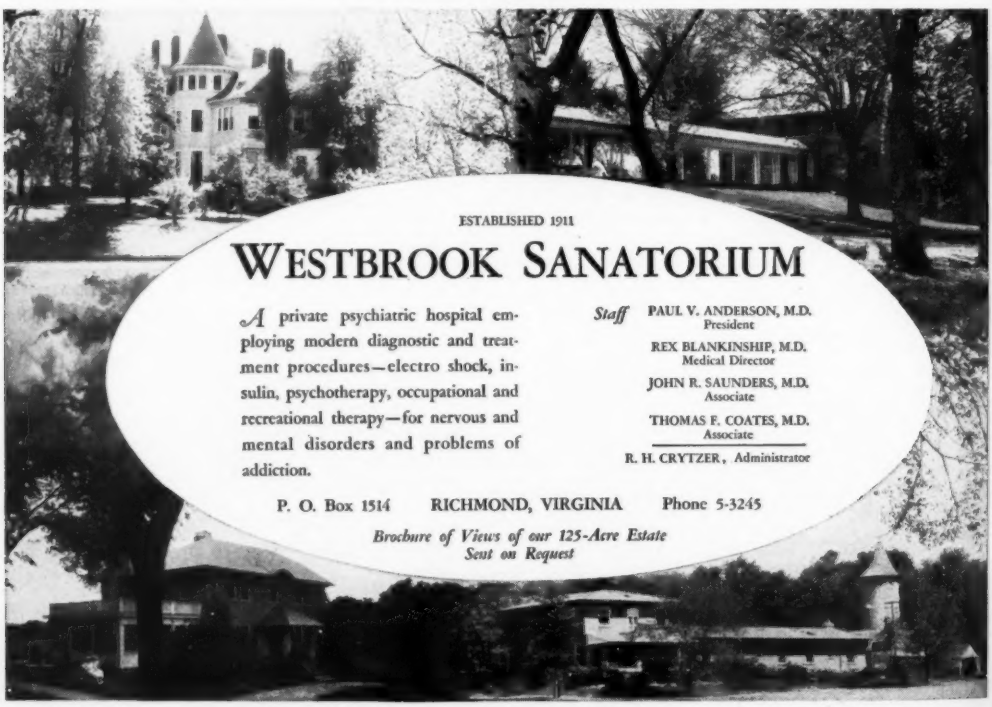

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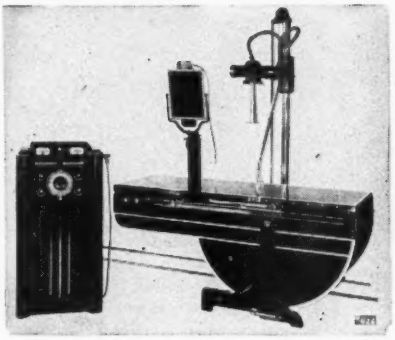

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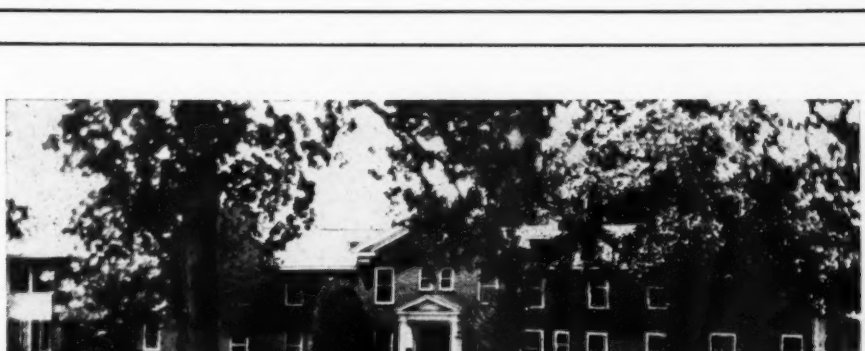

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FIFTH ANNUAL

Postgraduate Assembly

in

ENDOCRINOLOGY AND METABOLISM

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The 64 lectures to be presented will cover all phases of endocrinology and metabolic disorders. Ample time will be given for discussions and answers at the end of each session and registrants are encouraged to contact members of the faculty for individual discussions. The entire program has been designed to interest not only the specialist but those in general practice and has been approved by the American Academy of General Practice for postgraduate credit.

A simultaneous translation of all lectures into Spanish will be provided through earphones.

Copies of the proceedings of the Assembly will be available to all registrants.

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A fee of $75 will be charged for the entire course and the attendance will be limited to 200. REGISTRATION WILL BE IN THE ORDER OF CHECKS RECEIVED AND WILL CLOSE ON OCTOBER 3, 1952. Should there be an insufficient number of applicants to fill the course, the registration fee will be refunded immediately in its full amount.

Please forward application on your letterhead, together with check payable to The Endocrine Society, to Henry H. Turner, M.D., Secretary-Treasurer, 1200 North Walker Street, Oklahoma City 3, Oklahoma, before October 3, 1952. Further information and program will be furnished upon request.

Hotel reservations should be made directly with the Roney Plaza Hotel, Miami Beach, Florida, and the hotel advised that you are attending this Postgraduate Assembly.

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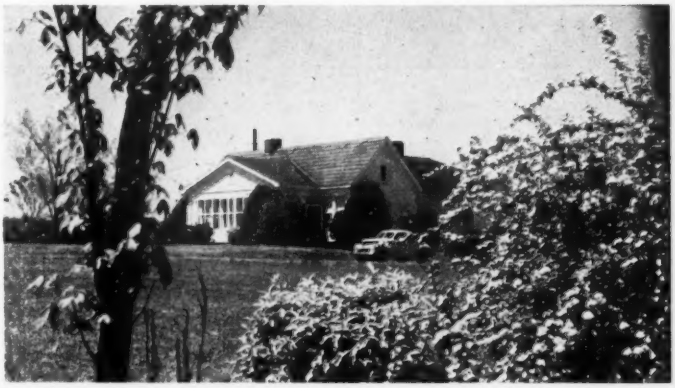

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Bibliography: 1. Barach, A.L., et al.: Bull. New York Acad. Med. *28*:353 (June) 1952.
2. Flippin, H.F., et al.: Report distributed at the Chicago Session of the A.M.A. (June) 1952.
3. Segal, M.S., et al.: GP, in press.

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